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# ***JPRS Report***

## **Soviet Union**

### ***Economic Affairs***

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# Soviet Union

## Economic Affairs

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## ECONOMIC POLICY, ORGANIZATION, MANAGEMENT

### Political, Economic Progress of Perestroika Assessed

904A0039A Moscow LITERATURNAYA GAZETA in  
Russian No 41, 11 Oct 89 p 10

[Interview with Academician S. Shatalin by V. Sokolov:  
"Costs Are Inevitable, But..."]

[Text] Academician Shatalin was asked in an interview what he considered himself—a liberal or conservative. And Stanislav Sergeyevich, who is known throughout the world as a ruffler of the feathers of Soviet economic life of long standing and a stern critic of the official authorities and consistent student of L.V. Kantorovich and the American W.W. Leontieff—the indomitable Stanislav Sergeyevich answered thus: "Read Berdyayev; he maintained that liberalism is not the best current in man's history. And Britain's progress is linked with the conservative Thatcher, for example. A wise man said: If you did not burn with passion in your youth, I am sorry for you, but if in your old age you are not a conservative, you are simply a fool, and I am no longer sorry for you. I have lived to a fair age and have become somewhat of a conservative, but have never been a liberal...." Today our correspondent V. Sokolov talks with the "conservative" Shatalin.

Vladimir Sokolov: If we say we are on the verge of collapse, it is not so much economic catastrophe which awaits us as spiritual. What good is meat or soap when people are inveighing against each other everywhere and when a wave of the most barbarous and brutal criminality is growing, and the legal-protection mechanisms are literally cracking up from internal strains. Have we become lost, perhaps? Perhaps what we need is not so much a new program as a new philosophy of action?

Stanislav Shatalin: I have no doubt that this is the case. True, it is suggested that we discuss this philosophy while remaining within the framework of socialism. But do we know precisely what socialism is? My young associates, who like to compute all there is, have counted a multitude of models of socialism which have existed throughout the history of human civilization. What kind of society has this been? I do not know. I know that there is our economy and there is the West's economy and can say precisely how they differ. But what socialism is may only be established axiomatically. If we follow Marxist thought, and not the system of dogmatic assertions which is called "Marxism," it has to be acknowledged, finally, that private property has to be an organic part of socialism. And it is time we had done with brandishing the wage labor bugaboo unless we want the "free" worker to continue to live much worse than the "hired" worker.

If we tell ourselves in advance: Socialism is what exists in the USSR, and then begin within this framework to conduct the debate, such a Faustian winking is inevitable: We know everything, but write and speak "within limits." Whence the impossibility of a clear prescription

for our economy. All that is happening in our country now could still be turned off, and this is what is most disturbing.

V.S.: But we have experienced extraordinary events and upheavals even this year and have been so passionate in our discussion of the elections of people's deputies and their first congress, the bloody conflicts and thousands-strong strikes.... Surely this has changed us?

S.Sh.: There have been changes; it could not have been otherwise. We have finally understood that we do not have a monopoly of interpretation of socialism, whence ensue many things. But this is not enough to ensure that society move a step higher. An example is the work of the congress, toward which I willy-nilly have a dual attitude.

I shall begin with the negative aspects. The Supreme Soviet was elected perfunctorily to a certain extent. Those who voted were frequently ignorant of the political, intellectual, and spiritual level of those for (or against) whom they happened to vote. For this reason we are now seeing that the Supreme Soviet will have to raise its professionalism considerably.

The second thing, which I have greatly disliked, is the evident contradiction between our party's present line and the still hardy tradition of alternativeness. Starting with those same elections of Supreme Soviet chairman. Obolenskiy's claims might to some people have seemed a farce, perhaps, but I see behind it a highly wretched problem of ours. I understood that no one would have elected Obolenskiy president, but hoped that the deputies would have had enough of a sense of elementary benevolence, old-fashioned breeding and decency, if you like, to have included him on the list for a secret ballot. I believe that this would have predetermined the spiritual level of the congress' work to a large extent.

I was also incensed by the fact that the congress responded with applause to General Rodionov's speech. And an even more distressing impression was made by the "tally-ho-ing" against Academician Sakharov when the Afghan problem came up. Speaking thus about a most meritorious man, most important scientist and real citizen, who gives absolutely no thought to his own fate—this is dreadful. It was at these moments that I keenly regretted having withdrawn my candidacy at the elections for deputy.

What has further distressed me? The extremely low economic and legal training of our deputies. Many of their proposals are so incompetent that one can only marvel and wonder how this body will operate in the future.

V.S.: Getting to the heart of the matter without scientific training cannot be done, but perhaps it is possible, guided by commonsense, to choose the best of the solutions offered by advisers?

S.Sh.: An illusion! In practice such a person very soon becomes the puppet of the group of advisers which more quickly wins his trust or liking simply.

It is to my great regret that the Moscow group of deputies has given a very inadequate account of itself. There are many of my friends in it, but it astonished me that they lacked the tactical ability to have themselves heard at the congress—at precisely the moment, what is more, when this was most required of them. May they not be offended with me, but I cannot fail to express this viewpoint for they have failed to justify my hopes to a very great extent.

Now about the positive aspects. The main thing is that the congress showed that quite a sizable number of very strong people who know how to stand their ground and fight, who sincerely take a cause to heart, and who are potentially important and real politicians has grown up in our society. This was for me one of the best impressions of the congress.

V.S.: And this generation of new politicians will increase with each successive congress. The electorate will look at Sergey Sergeyevich Alekseyev, say, and recognize the kind of deputy candidate of their own whom they need at the next elections.

S.Sh.: The number of such deputies will inevitably grow, and this instills in me personally confidence that our country's future is potentially in sure hands.

The next plus was that I saw with my own eyes that a multiparty system has matured in our society. Without inventing names for the likely parties as of today, I shall call them by their nuances, of which I count, perhaps, five. These are left, center-left, center, center-right and right. Of course, these parties have inevitably to express the interests of different social groups, but they will just as inevitably link people by their education, probity, devotion to the country and the cause....

V.S.: Excuse me, but the members of any party will consider precisely themselves the most upright, correctly educated, and most devoted to their country. And what will happen under our current conditions of struggle against our own past for everything—from power to a bar of household soap, from clean water to economic independence—if those doing the fighting begin also to correct one another's educational and ideological distortions?

S.Sh.: I would put it thus: I am in principle for a multiparty system, as long as we do not intend remaining for long in the position of mass-meeting pluralism, but start to create real political institutions.

I am a communist of 30 years' standing, but I believe that a multiparty system could emerge in our country on the initiative of the CPSU itself.

V.S.: We are experiencing an explosive growth of national self-awareness and, strictly speaking, centrifugal forces. Do you not fear that the good of a multiparty

system will be used primarily and most vigorously for the consolidation of nationalist, separatist, and populist forces?

S.Sh.: Of course, nationalist movements exist—both in our country and all over the world—but the question concerning them is akin to the task of squaring the circle. One could imagine Texas conceiving the intention of quitting the United States for some reason or other, but one could not suppose that it would do so to align itself with Mexico. On the contrary, any Mexican state would like to become a part of the United States—but the obstacles here are of approximately the same order as those in respect of which we would hardly agree to admit to the union republics Afghanistan, say. In short, nationalist, separatist movements never arise where the economic soil for this is lacking.

V.S.: Even shorter, let well enough alone?

S.Sh.: Possibly. We are a country which eats poorly and in which there is a shortage of literally everything, and this, and not the intrigues of nationalists, is the whole problem. That of which our peoples are deprived finds its substitution—in cultural, noncultural, political, and barbarous forms—and this is another question. We simply cannot, after all, take the path of French, Swiss, or some further enlightened parliamentarianism, but move toward parliamentarianism we must, and we will pay our own particular price for this. We cannot, alas, become a decent country without costs, we need to understand this and shed all illusions. That our common task is to minimize the bitter costs of the transition period is another matter....

V.S.: And get by without blood.

S.Sh.: Undoubtedly. I believe that a wise policy considering the interests of all parties, treating national problems with delicacy, geared to the social consolidation of society and attentive to the peoples' moral and ethical and religious values—such a policy would reduce these costs considerably.

V.S.: What might help today unite our people torn apart into nations (and even within the nations also!) by insults, conflicts, and ill-provisioned conditions? The market?

S.Sh.: The market, yes. But this will still not make us the USSR people once again. Common goals are needed—this is the second unifying factor. But take our present plan—what is it? A set of figures not oriented toward man in the least. Why do I need to know how much pig iron will be smelted and milk produced next year? I want to know what the family of Academician Shatalin, the journalist Sokolov, the worker Peters, and the cotton grower Makhmudov will have in this 5-year plan. Will we be worse off? Tell us honestly; we will prepare ourselves and work a little harder. Better? In what way? The plan should be oriented toward man, otherwise it becomes pointless. We can be united only by common goals and large programs, whose results will be perceived

by each individual. We need not only a macroplan—for the union or the republics—we need a plan for social groups, a plan for nations, cities, rayons, even streets, if you will.

The third unifying factor is the cultural collection of our nations originating with Orthodoxy, Islam, Catholicism, Judaism, Lamaism, and all the other religions practiced by our peoples. Unification of the churches—this also would help the country's unification for the sake of common goals.

V.S.: Stanislav Sergeyevich, can we today in the infinitely complicated situation tell ourselves: Dogmatic assertions have brought us to an impasse, we will throw them out and become pragmatists?

S.Sh.: Not can, must. Thrice must! Enough of myths, enough of paganism, only blood and loss come from them, nothing more. We need to learn how to manage rationally. And what "ism" we subsequently attach to the rational economic system, we will see.

What do we need for internal unity—to move toward real unity in the world? Mikhail Sergeyevich has formulated brilliantly, I believe, the question of the system of values common to all mankind and their priorities. Of course, the process will be difficult both for the West and for us, but it is a splendid idea.

What further do we need to do—to switch from the principle of "I forbid" to that of "I substitute," on which all civilization was built. As soon as "I forbid" was heard, everything caved in everywhere—beginning with the expulsion of Adam and Eve from Paradise.

The people can no longer be fooled. We need to return to values which evolved naturally and which link us with the rest of humanity. To live according to one's conscience, love one another, be kind, help the disadvantaged—people of various nations and religious beliefs have lived for ages by these commandments. What is the point of inventing new ones and, what is more, implanting them by force? Is man's moral experience contrary to socialist values?

V.S.: How do you evaluate the present state of the country?

S.Sh.: As "cannot get worse." This is an optimistic assessment because any movement from a position of "rock bottom" is salutary and strengthens us. Marx said approximately in "Critique of the Gotha Program" that any slight, but real movement is dearer than a dozen programs. We need to really move in the direction of more and more democracy, if only by tiny steps. This does not mean, of course, that we have to pronounce anathema on radicals and pin our hopes on quiet evolution; no, we need to accelerate this process by every means. But we must not panic and dart about in various directions.

V.S.: What for you, an economist, would be a guarantee of the success of perestroika?

S.Sh.: Do not imagine it to be pluralism of ownership, although I consider this question fundamental. But real political pluralism, when there is an opposition and one feels that one will always be protected, even if one finds oneself in a very considerable minority. Without this there will be no democracy, and no compromise is possible here.

V.S.: Then another "economic" question—what impression was made on you by the government program pertaining to a way out of the crisis proposed at the last session?

S.Sh.: There is no doubting the positive side of the proposed direction. After all, not only the government, but also the country's top scholars worked on the program, and the deputies' proposals made an incontestable contribution. The question is "merely" whether these measures are really practicable. For example, a literally ferocious rate of growth of current consumption and nonindustrial construction is envisaged, and retail commodity turnover is to leap by R40 billion. But how will inflation jump here, and will it not once again reduce the anticipated increases to nothing?

It has to be considered that our lousy finances and the catastrophe of the market are the tip of the iceberg. A considerably larger part is the fact that we are making extremely inadequate use of all material, natural, and labor resources. For this reason the problem of financing the recovery and balancing the market is by no means just economics, not just the monetary system, it is (to speak of long-term and relatively dependable strategy) a problem of the creation of a motivational mechanism which constantly and vigorously pushes us toward the increased efficiency of the use of our resources. It seems to me that this problem is simply not understood with us.

V.S.: As far as I know, there was virtually no mention at the congress of the motivational mechanism.

S.Sh.: Just so, unfortunately. But let us not fool ourselves! If our motivational mechanism is weaker than in the West, we will, consequently, lose out to capitalism.

The concept of motivations is very, very complex and amounts to more than just economics. It includes moral-ethical, social, and even ethnic factors—the whole gamut. Unfortunately, we have oversimplified this concept dreadfully and reduced it virtually to the ruble. Rubles were provided, work was obtained, and that was it. It was on this that the program was constructed also.

V.S.: So is it practicable or not?

S.Sh.: Only given a "firm economic hand." Much will depend on whether we are able to curb the growth of unearned income and whether we can handle the troglodyte egotism of the enterprises and cooperatives. Without the use of power we will simply be unable to reduce capital investments in Group A. And we must all support in earnest N.I. Ryzhkov and the government in order that the program prove feasible.

V.S.: What do you have to say about a restructuring of imports?

S.Sh.: An approximate doubling thereof is, as you know, envisaged in the consumer sector, and this is a very effective, good measure, I believe. It will improve the budget situation and reduce the strain on the consumer market, but this is a short-term and temporary measure and cannot improve our dynamics. The main thing—and I have already spoken about this and now reiterate—we have the need and right to move toward capital imports. We will build together with the West the most modern auto-manufacturing plants and produce home appliances and electronic equipment and so forth; that is, we will create essentially a radically different consumer sector and radically different industry. The creation of such facilities will automatically make more serious technological, technical and economic demands on the country's economy. I maintain with all responsibility: this is not debt-slavery.

V.S.: An opportunity for incorporation in the world economy is opening up, I agree. But an obstacle on this path is the nonconvertibility of the ruble. How can this be overcome?

S.Sh.: It would be better, of course, were it rich and healthy, but the problem of the convertibility of our ruble should not be exaggerated at this time. Speaking of imports of capital, this is what I have in mind—I would borrow hard currency and together with Western specialists (paying them in their own currency in order to help assimilate their capital) I would create a new sector, in the very short order which is for them customary, what is more. Ruble convertibility is not that essential here, it works to a greater extent in other situations—at the time of the creation of joint ventures and during overseas trips, for example.... Capital imports could prove all the more useful, in that making the ruble convertible in the next few years is impossible, of this I am convinced, but we need to make a qualitative change in industry as quickly as possible.

V.S.: But many people are convinced, and are convincing others, that a convertible ruble could be introduced as of the new year even.

S.Sh.: Out-and-out recklessness. We have no conditions for this. The most impoverished quality of consumer goods and services, machine tools which are impossible by world standards, and the sole thing which could help is oil....

V.S.: Which, luckily, no one needs in quantities such as would suffice to support the ruble.

S.Sh.: Luckily, yes, otherwise we would have sold off everything. We do not as yet have even convertibility of the ruble into commodities (basic necessities, frequently), but are promising the people external convertibility, convertibility into hard currency. Only via efficiency, a motivational mechanism and modern technology, only via the quality of our commodities will

we approach in earnest ruble convertibility. Yugoslavia is a graphic example of that to which an absolutely ill-conceived attempt, in my view, at making the dinar convertible has led.

V.S.: And what can you say about the new government body—the Economic Reform Commission?

S.Sh.: It is necessary here to fractionate the variables, as the mathematicians say. First, I believe it wrong that the office of chairman of this commission is held by Academician Leonid Ivanovich Abalkin, deputy chairman of the Council of Ministers. Not because Leonid Ivanovich is a bad scientist. He is an excellent, strong, knowledgeable economist and a specialist who feels keenly for the cause. But his rank in the Soviet hierarchy.... Is it conceivable that one who is not a member of the Politburo should be responsible for the economic reform, for the country's survival and its future? Of course, the person to whom this work is entrusted needs to be made a member of the Politburo and endowed with the appropriate authority, and the restructuring of the economy would then progress far more scientifically and vigorously. As long as we intend doing more than just paying lip service to it.

Second, there is the method of brainstorming a problem. But specialists know that a group of more than 5-7 persons becomes unmanageable, in such storms included. For this reason the commission is a commission, but I believe that small, 3- or 4-man groups of their own advisers would be highly useful to both Mikhail Sergeyevich Gorbachev and Nikolay Ivanovich Ryzhkov. It by no means signifies that these people should replace the Gosplan, the Council of Ministers, and the reform committees and commissions, but the president and the premier would have an opportunity with the aid of such advisers to analyze in far greater depth the solutions with which they are presented by, say, the chairman of the Reform Commission.

And, further, real statistics are needed like the air we breathe for we do not know how we are living.

V.S.: What do you expect of the coming Supreme Soviet session?

S.Sh.: The most important law which should be enacted in the very near future is a property law. Of course, it must first undergo nationwide discussion; it cannot be enacted without this. In the same way, via a referendum, we need to push through other bills of exceptional importance—on the socialist enterprise and entrepreneurship and on a uniform tax system. Finally, the fourth most important document of this package is a law on power. Altogether they will create the legal basis for transformation of the economic and political mechanism in our country. The next congress of people's deputies could be held after this.

To speak of political structures, I am convinced that we need a presidential form of administration of the country. Currently, however, we have a combination of

the Byzantine, French, and American systems. Formally our president is Gorbachev, he being chairman of the national assembly (not yet premier, thank God)—there being nothing like this in any other country, of course. Division of powers does not exist. We need to bring order to bear here and take pains to ensure that as a matter of priority there be a real vice president capable of taking over the reins of leadership in full, if need be.

V.S.: So, private property, division of powers, and presidential administration—precisely the ideas which in some discussions are being called reckless and political intrigues.

S.Sh.: Alas, such things are being heard from persons not in the front row of the country's leadership. But, together with the people, I have reached these ideas through suffering, and they contain our right to live according to the laws of civilization. And I have shown by my whole life, I hope, that I do not deserve the least reproach for recklessness.

V.S.: Stanislav Sergeyevich, is there in the world economy a model acceptable for us, or are we condemned to eternally seek our own inimitable paths?

S.Sh.: It is time, I believe, for the Slavophiles to unite with the Westerners and turn to face the West. We could pay closer attention to the experience of Japan, South Korea, China....

V.S.: A Sweden, which is increasingly being called a country of real socialism?

S.Sh.: It is difficult for us to copy it; we lack the culture. We have a different philosophy. We altogether cannot and will not copy anyone. The same W.W. Leontieff says: It would be difficult to try and build an American economy in your economy. A different country, and such a distinctive one at that!

V.S.: To what extent might we count in the renovation of the economy on outside assistance?

S.Sh.: In many processes the West's assistance is for us simply essential. With credit, the setting up of a stock exchange and the market—this means expertise also—and with technical assistance. We need now to send a huge number of our people to laboratories and firms—to learn, learn, learn. We need to invite to our industry top managers and consultants from the West. They would grasp our reality very quickly and help rationalize it.

V.S.: What kind of state sector should there be in the economy, in your opinion?

S.Sh.: At the time of their enthusiasm for nationalization the French and the British socialized the auto- and aircraft-manufacturing firms even. But to revitalize the economy Thatcher denationalized virtually everything in her country. And we had an interesting discussion in this connection with her chancellor of the exchequer. The burden thereof (this is rudimentary for the professional economist, alas, but we are starting from the

beginning) was that nothing which is any good and which moves should be socialized. It should be allowed free rein and should progress on the basis of competition. Consequently, what may practicably be taken into state control? The infrastructure—the telephone system, for example, roads, the social sphere, and the most unique facilities. Control of the financial and credit system, protection of natural-ecological potential. But state ownership in respect of automobile manufacture is pointless. Why have unprofitable state defense plants if it is possible to order at the plants of a profitable engineering company all that the state desires, weapons included? And of a higher quality, what is more, I would note, than at a state-owned enterprise.

V.S.: A few days ago the cooperative movement only just avoided a very powerful, perhaps, fatal, blow. Just 20 votes of people's deputies saved it at the session from an attempt to bring the cooperatives under the control of the state bureaucracy—I can imagine what this was like for you, who took a hand in the restoration of this sector in our economy.

S.Sh.: I remain convinced that it is the cooperative system which is a principal factor of the dynamization of our country. But we did everything to cover the cooperatives with shame. We failed to think through to what they should be devoting themselves primarily and failed to elaborate mechanisms of their taxation and supply. We allowed the failures of the state sector to be covered up by a search for scapegoats in the shape of the cooperatives and brainless economists. This was all in the past, and how it all ended, we know.

V.S.: How do you see our economy by the year 2000?

S.Sh.: One thing I can say for sure—it will be difficult for us to catch up with the others. We will be able to clothe ourselves and feed ourselves, but we will not be the leaders, we need to understand this and shed illusions. We have a tragic history, a vast country with a difficult climate and wretched infrastructure. We do not need to overtake America. Nor do we need to overtake Europe. We need to make our country respectable in a material respect and to ensure that everyone may remain himself here. We will not be the first in the world in terms of efficiency, we will not be the first in terms of social provision, will not be for a long time, in any event. But we will be a decent society, with which Europe, America, and the East will endeavor to do business. And will endeavor thus, I am profoundly convinced, because the peoples of our union have gigantic potential of spirituality, culture, tolerance, and inventiveness in the surmounting of the problems confronting the whole modern world. And we have a fantastic gene pool and an unparalleled capacity for self-restoration. How many times it has been said that Russia is in ashes! And each time it has arisen. These are, I believe, very big trump cards of ours.

Gilyarovskiy said: "Russia has two misfortunes: the power of darkness below, and the darkness of power



above." Our leaders' first task is to lessen both. Second, despite all the fears of which we have spoken, I as a professional do not see the least reason for panic. Not the least! It is necessary only to follow the words of Dante: "A strong heart is needed here; fear must not give counsel here."

### Denationalization of Property Tied to Greater Democracy

904A0014A Moscow *LITERATURNAYA GAZETA* in Russian No 40, 4 Oct 89 p 10

[Article by Gavriil Popov, people's deputy of the USSR, cochairman of an interregional group, doctor of economic sciences, and chief editor of the journal *VOPROSY EKONOMIKI*, under the "Concept" rubric: "On the Benefit of Inequality"]

[Text] What is the nature of the current situation? Some say that perestroika has begun to retreat. This is not the case. It is also not true that perestroika has stopped or even slowed down. On the contrary, it has recently accelerated, especially because of the elections of people's deputies of the USSR. It is simply that the time has come when the disintegration of the old has surpassed—and by far—the creation of the new. When we demanded a deepening of perestroika, we were striving to prevent precisely this situation.

### Ways of Decentralization

The entire historical experience of our country as well as of other socialist countries affirms that the basic insuperable reason for all the economic difficulties is the low level of its efficiency, incommensurate with its scale and linked with the total socialization of all means of production. Socialization itself, according to Marx, is an inevitable stage in the development of production. But when there is no objective basis for socialization, however, it is necessary to rely on a force that is foreign to the economy—the state. The state demanded "special groups of armed people," an apparatus, a bureaucracy. The cost of the volitional socialization was the removal of the working people from the means of production and their alienation. Administrative socialism arose.

Therefore, the primary tool against the crisis is denationalization.

There can be alternatives to state ownership: individual (private) property; property belonging to only part of the labor collective (cooperative); property of the entire labor collective distributed equally among its members; property of the entire labor collective distributed unequally among its members (through shares of stock, for example); and property of public organizations.

What should be left to the state and what should we try to denationalize?

It is clear that three factors must be considered. In the first place, the world experience in nationalization and

denationalization. Secondly, the efficiency of particular means of production in the hands of different owners as demonstrated in the course of competition in the free market. And then the argument whether a state "Inturist" is needed or whether it can be replaced through competing joint-stock organizations of the union republics will be resolved in practice. Thirdly, the interest in implementing a centralized scientific-technical, social and ecological policy.

But a fundamental restructuring is also needed for that part of property that remains in the hands of the state.

At this time, the USSR, republics and local soviets are in charge of state property. At the same time, the rights of the republics and local soviets depend practically entirely upon the will of the USSR.

A key problem is that of converting the republics into the main subject of state ownership. The local soviets will receive their rights from the republics. The USSR will also receive rights from the republics on the basis of the union treaty. (An upward and downward delegation, in a manner of speaking.) As we see, it is a matter of the **decentralization** of ownership of state property.

But whatever authority is the juridical owner of state property, it will not manage operations. The problem arises of the managing owner. The **leasing enterprise** must be the basic enterprise. It is owned by authorities that do not under any circumstances want to renounce their right of ownership. For this reason, the labor collective can only lease the enterprise.

The main consequence of the formation of independent nonstate enterprises and independent state leased enterprises will be the **market**. The market will become the mechanism where free economic competition will finally be able to objectively determine socially necessary expenditures, the real price of goods, etc.

The transition to a truly free market is impossible without an extensive and consistent demonopolization of our economy, which alone can establish a competitive situation.

What is needed in the first place is a structural reorganization of the economy. It is necessary to overcome distortions, in which some branches are insufficiently developed and others are hypertrophied, having concentrated gigantic reserves and paying out unsecured wages.

The next link is the overcoming of bureaucratic associations of giant enterprises. It is necessary to separate independent enterprises from the associations and we must strive to separate energy-producing shops, industrial production systems, construction organizations, hospitals, dining rooms, children's camps, sports complexes, etc. from large-scale enterprises. We need a program similar to the one that the United States carried out in occupied Japan after the war, when it dissolved the renowned monopolies—the *dzaibatsu*. As a result,

Japan got a real basis for competition, one of the powerful factors in the coming boom.

Thirdly, it is necessary to organize new competing enterprises. With the help of a system of privileges and by combining the resources of other enterprises interested in overcoming monopolism in this sector. It is precisely here where it is necessary to attract imports and foreign firms.

Finally, an extremely important block in the fundamental restructuring is that of an immediate change in farming relations. As early as the spring of 1990, peasants must begin working on their parcels of land, certain of the fact that this land will be passed on to their children and that no kolkhoz will want to "expropriate from the kulaks" as soon as it thinks that they have "become fat enough" in freedom. It is necessary to take just as centralized an approach in helping to establish peasant family holdings as when we eradicated them. If there is an obligation to the countryside, then only in such a setting.

These are the key elements of the Law on Property that could integrate the Law on Land, the Law on Leasing, the Law on the Enterprise and the Law on Cooperation so that no contradictions arise between them.

#### How to Introduce the Law

Who will implement the Law on Property?

Two versions are possible in principle. In the first, there is initially a redistribution of state property among the republics, the USSR and the local soviets (decentralization). In the second version, the center itself also "directs" the entire process.

Each of the versions has its special features but in all cases it is essential to be resolute about removing any executive bodies (ministries, directorates of local soviets) as well as the current owners of state property (existing plants, sovkhozes, kolkhozes, etc.) from command over its redistribution.

All of these bodies were established to manage state property. Their income was supposed to arise not from possessing but from utilizing it and therefore they cannot be lessees. The authorities have no need for their mediation or, in essence, for their parasitism.

The existing bodies and existing enterprises can participate only as one of the claimants to state property and that is all. There must be no repetition of the mistake made in China, where precisely the previous bureaucratic system tried to monopolize the division of property and began to profit greatly from this. The process must be so public and so under the control of the deputies of the soviets that it precludes any attempts by administrators to utilize power to grab state property. Democratically elected soviets must be the main link in the implementation of the Law on Property.

In fighting the danger of a "bureaucratic division," one must not fail to see the danger of the participation of mafia money in the division of state property.

What must be the payment for denationalized means of production? At the time of the Civil War, President Lincoln put through a law on the right of every citizen of the United States to an equal parcel from the available land at practically no cost.

This is a fruitful idea but it needs to be modified on account of the indivisibility (in contrast to land) of many means of production (stores, plants, etc.).

It is possible that we ought to calculate the average share of the total wealth that the average citizen of the country has a right to claim. And then the means of production within the limits of this quota can be transferred free of cost within the course of denationalization. And everything exceeding the quota must be redeemed immediately or gradually.

#### New Centralism

The agencies that will implement the state regulation of the economy must be separated from the state sector. Otherwise they will become the conduits of the interests of ministries and state enterprises and will not be able to provide for the development of the entire economy.

Above all the Ministry of Finance and USSR Gosbank must become regulatory agencies.

A number of agencies now fully oriented toward the state sector (of the USSR Gosplan type) will have to divided, as it were. We need our own Gosplan for the entire economy—this will be regulatory agency. But Gosplan for the state sector will, of course, remain an administrative agency.

The agencies for state regulation will act through a system of economic and, in part, administrative tools: taxes, tariffs, norms in the area of ecology and accident prevention, and standards, including those protecting the interests of consumers.

The basic form of state regulation of the economy will be various kinds of federal, republic and local programs called upon to bring together through economic methods the efforts of state agencies and state and nonstate enterprises on tasks being resolved slowly or less efficiently through market methods.

And, finally, the third channel for the centralized management of the economy is the state sector. It has independent importance as such.

It can sometimes be heard that in developed countries there has long since been no purely free market. Accordingly, it is foolish for us to go for what the capitalist countries have already overcome. The concept that our market should also be regulated is a correct one. But one must not think that the current centralism can be the basis for the future regulating mechanism. The current

centralism must be transformed into a new centralism that meets the new conditions. Otherwise, under the banner of the idea of a mechanism for market regulation will stand a striving to preserve the present centralism (which is usually what is behind all the appeals to remember the regulated nature of the market under capitalism). Behind such appeals to "assimilate" world experience are attempts to preserve the existing administrative-bureaucratic centralism.

Neither the present Gosplan nor Gossnab nor the ministries can regulate the market. Even the system of the USSR Ministry of Finances requires fundamental restructuring before it can pretend to the role of such an instrument.

If we construct a building instead of a shed, we cannot conclude from the correct observation that a building also needs a roof that precisely the roof of the existing shed must be the basis for the roof of the new building.

To establish a new mechanism, we have to resolve still another task—that of relieving party organs from economic activities. This task has three aspects. The first is the curtailing of the right of primary party organizations to control the activities of enterprises. It has already become an anachronism in cooperatives as well as in the councils of labor collectives with real power. The second aspect is the freeing of the party organs at rayon and higher levels from direct control over the work of the agencies for economic administration, because the economic managers are supposed to be appointed and removed by the soviets. The third aspect is the development of a new channel—the influence of the party on the resolution of economic problems through agencies of authority, soviets, public organizations and propaganda and agitation among deputies and voters.

This is a complex and contradictory process but one thing is clear: a transition to a new system is impossible without eliminating agencies from the system for managing the economy that are unrelated to property relations, that have no economic instruments and no economic responsibility and that involve themselves in personnel appointments and in daily work.

The actions of party organs and organizations in the economy are the most concentrated expression of administrative socialism. Only by renouncing this power and the associated responsibility for the economic crisis can the party avoid disappearing along with the administrative system.

### Main Maneuver

The transition to a fundamentally new system is linked with unavoidable difficulties of a start-up nature. The main economic conflict in the transitional period is that the final objective of the changes is a free market with free competition but the entire situation in the economy is such that any steps in the direction of a free market lead to price rises, speculation and the enrichment of the bureaucrats in control of the public wealth. In short, the

movement to a system that is called upon to save the country hits the dominant strata of our people.

As an alternative, the idea is being proposed of putting strict administrative pressure on speculation, cooperatives and essentially the market as such. The adherents of this version are correctly accentuating their attention on the danger of an economic collapse of the country, anarchy and all of the resulting consequences, including the main consequence—a new administrative dictatorship. Even if this dictatorship is not conservative but national, revolutionary and populist, it is still doomed to take the course that we knew from 1917 through 1937.

In some ways, our situation is reminiscent of what the French Revolution faced in the economy 200 years ago. Having proclaimed freedom and rejected all forms of the dictates of the king and feudal lords over the economy, in practice under the conditions of a worsening economic crisis, the French Revolution went from one tightening of control over the market to the next. Accordingly, the forms of political power also became more severe. Soon waves of inflation made the guillotine the universal means for controlling prices. With its help, they also controlled thought. This discrepancy between the ultimate economic objective (a free market) and the methods applied (total administrative regulation of the economy) did much to determine the tragic logic in the development of events in the French Revolution.

This is why the idea of total bureaucratic control in the economy for the sake of serene economic freedom (as expressed by a number of intellectuals who have become confused by the complexity of perestroika and who see the growing waves of popular pressure as nothing more than the danger of an anarchic collapse that will be the basis for a conservative dictatorship) is exceptionally dangerous, whatever the good intentions of its authors might be.

But this idea may also be attractive to the masses worn out by the hardships of the economic restructuring and hunger may force them to seek alternatives to democracy. This is why the central problem is the search for an alternative way to economic reform.

It seems to me that the way out could be the following. Instead of total administrative control in the economy and suppression of the market as a whole, it is essential to have a strictly dosed administrative guarantee of a minimum level of consumption that does not depend upon the personality of managers and that is under the control of democratic institutes—the introduction of a rationing system, as unpopular as this may sound. With guaranteed minimums for the basic nutritional items and daily consumption at fixed prices.

By the way, this already exists but in forms advantageous to the local bureaucracy and commerce itself. But the ration cards must be uniform throughout the country and ration stores must be strictly separated from free trade through the direct control of the working people.

Accordingly, the enterprises must be issued state orders for this minimum of commodities.

And the producers must have the right to put everything that is produced in excess of the state order on the free market and to sell it at freely determined prices. Only in this case will the market begin to "work": to stimulate producers, to give the working people an interest in earnings and to establish demand and supply prices. The rationing system must cover only a minimum of goods of primary necessity and the free market is obliged to supplement it. By the way, this would automatically make attacks on cooperatives senseless, because all state enterprises would participate in the market under the same conditions. Having established an administratively regulated minimum, we are going for a new system in everything else.

Yes, this version is very complicated. But it is promising and includes a bridge to the future, whereas the ideas of total control offer nothing except fear of a conservative upheaval.

Our perestroika is possible either democratically or it is doomed to fail. Precisely the very nature of real changes makes them impossible outside of democracy. For this reason, a first-priority task is to raise the spirit of democracy in the elections for the soviets of the republics and localities. There can be no compromises in the area of democracy.

At the same time, one cannot fail to see that the establishment of a law-governed state is accompanied by a kind of skewness in the direction of the representative authorities. But democracy is three kinds of power. And it needs a strong executive authority as well as a strong control authority. We do not have either one.

I would think once again about the two centuries of experience that the United States has in democracy. It turned out to be strong not only because it established an effective elected legislative authority: the Senate, House of Representatives and state legislatures. But it also has a strong executive authority: the president, state governors and mayors of the cities. They are also elected by the people and are actually capable of opposing the legislators in power. The people also elect judges and police chiefs and they are sufficiently independent.

In our system—in the course of the upcoming elections in the republics and localities—it is necessary to introduce the direct election of presidents of the republics as well as of persons heading the administration of oblasts, cities and villages. We will remain in the framework of democracy and at the same time will establish that strong executive power without which our most needed laws will remain scraps of paper and no ration cards will protect the people.

A strong executive power is also needed because it creates a kind of real promise of work and careers for those conscientious administrators in our party, state and economic apparatus who are able and want to work

but who—which is usually natural—are not very suitable for an elected political career.

I would call the resolute democratization of the elections of local soviets and the elections of managers of executive authority the political aspect of the current stage of perestroika.

It is not difficult to understand that both the economic and political components are closely related and interdependent.

### Submerged Rocks

It would be dangerous not to see the profound contradictions that are inherent in the new economic system. It is necessary to reexamine the "antidotes" that could somehow mitigate them, since these contradictions are themselves unavoidable and are the price of greater efficiency.

Income in the new system is determined by the results of labor. The results themselves are evaluated by the market, for which expenditures of time, physical efforts and, in general, the personal contribution of the worker are significantly less important than for the fulfillment of the planning target. The market price, for example, can depend upon the degree of newness of a product and upon skewness in the structure of the economy and therefore market income in the eyes of many working people may appear not to be in accordance with the expenditure of labor.

Such kinds of activities as mediation, buying and selling, the investment of money and organizational activities in general will be highly profitable in the new economic system. These and similar kinds of activities are also equated with nonlabor income in the ordinary consciousness. The administrative system did much and perestroika also contributed much to giving the activities of the organizer the image of a bureaucrat who is at best useless and sometimes simply parasitic.

The turning over of land to the hands of local soviets and mineral resources to the disposition of the republics will result in the transfer of rent to the budget of territorial bodies. This will be the basis for the rise of inevitable large differences in income.

But the most significant change is the appearance of income from past labor without any current physical or mental efforts. This income appeared long ago (interest on deposits to savings banks, etc.). At the present time, however, these payments are usually so small that they do not compensate the simple inflationary devaluation of deposits. In the new system, however, income from money will become a daily phenomenon.

All of these problems indicate a fundamental change in the very nature of the impact of the law of distribution on the results of labor under the conditions of the new system of property relations.

Of all the noted problems, the most complex one is that of income from past labor—money yielding money. We need to think whether the chronic troubles of administrative socialism—indifference toward property (past labor), the use of natural resources, the ecological crisis, and the disgraceful attitude toward materials and equipment—are not linked with the idea of the creative role of living labor only in the establishment of value?

It is obvious that it is necessary to develop a new theory of income from past labor and precisely in connection with the problems of our perestroyka.

All of this is directly related to the concept of the new system. For its essence is the plan to replace the worker's interest only in his workplace and labor with interest in the real results of his labor so that these results will increase and there will be a saving not only of living but also of past labor.

But if a citizen receives an inheritance and, not doing anything, begins to receive rent from the bank from the money of his parents, then a collision arises in the specific purpose of the new system. Established for the stimulation of efficient work and having permitted income from money for this purpose, this system will create the conditions for the appearance of people who do not work at all.

A unique general problem arises. The new system cannot be introduced without defeating the apparatus of bureaucratic socialism. But this is impossible without relying on the masses, without the exceptionally active struggle of the masses. At the same time, the new system promises a differentiation of income for the masses. They have to fight so that one part of the society can earn 10 times as much as the other part.

A high degree of culture is required to understand that in so doing **each person** will have all the conditions for a **normal** life and that payment in the form of the increased wealth of some will be the basis for the satisfaction of the overall level of well-being of all. But we still have a lot of people who are more inclined to live poorly than to live well and thereby see someone else better off. This kind of consciousness was one of the props of administrative socialism and we have not overcome it, for the country has not gone through the school of developed capitalism.

How can we involve all members of the society in the struggle for the new system without concealing what it has in store for them?

The masses were caught up in the bourgeois revolution through such slogans as "freedom," "equality" and "fraternity." Their form allowed the masses to interpret them in their own spirit. But the same form fully permitted the inscription of the usual capitalist activity in these slogans. In our revolution as well, what it proclaimed and what its leaders and participants believed in differed greatly from its real results. The dictatorship and repression were the consequence of the revolution because it was necessary to "normalize" the

undisciplined masses and return them to their workplaces and to impose on them the interpretation of the revolutionary slogans that corresponded to administrative socialism.

Will these patterns be repeated in our perestroyka? Or will we be able to find a fundamentally new way of involving the popular masses in historical action?

Here it is important to consider that the profound democratization linked with self-administration in the economy and politics corresponds to the very essence of the new socialism. But democracy is a good in itself, for which one can go along with an increase in economic inequality, especially since the point of reference in this inequality will be the increasing average standard of living.

At the same time, it is obvious how dangerous it is for millions of people inadequately linked with new property relations or not yet guided at all by new economic interests to participate in elections or meetings or to take to the streets in general. The citizen received political rights but he does not yet know what to use them for or which program of which candidate to support. The result can be favorable soil for the ideas of populism, wage leveling and confiscations—in short, everything that determined the appearance of anarchy and the transition to "military communism" in 1918.

This is why it is so important that the masses now taking the scene of active historical influence also be linked with the new economic property relations and that the person in the sphere of political democracy think about **his** land, **his** farm, **his** cooperative and **his** shares of stock. This will significantly diminish the contradictions in the new system, although it will not, of course, eliminate them entirely.

The funds coming in as payment for denationalized property must become the main source for the elimination of those social stresses that are inevitable in the course of perestroyka. They may become sources for the compensation of those strata of the population (pensioners, etc.) who created the general wealth but for whom it is now too late to begin to build a life on the basis of the new mechanism.

Unlimited democracy with the right of voters to influence everything (for example, to introduce any taxes on property or to "clamp down" on economic inequality through a system of powerful social guarantees to those strata that are not as well off) can abolish all of the advantages of the new economy. For democracy has always been burdened with the danger of the development of social justice into wage leveling.

The main support of perestroyka in politics and the economy is a spirit of democracy and its primary result in the economy is differentiation. Will the masses go for this version of the system of economic inequality compensated by extensive democracy and personal freedom as well as a high general standard of living?

The main problem in our perestroyka is the contradiction between the unprecedented democracy that we need and the increase in economic inequality.

### **Broad Prospects Conversion Allows Viewed**

*90UM0050A Moscow TRUD in Russian 18 Oct 89 p 3*

[Article by V. Shatrov, professor, doctor of juridical sciences: "Conversion: An Area of Cooperation"]

[Text] There is an almost aphoristic saying: Disarmament is political ecology. Disarmament is also, in my opinion, moral refreshment, deemphasis of political ideology, and cleansing of world economic ties. In a word, this is a road to a new order of collaboration and cooperation between nations and peoples.

The general significance and global nature of the disarmament problem does not exclude, but rather stresses, the importance of the national aspect of this problem, for it is individual countries that are doing the disarming in the final analysis. Paradoxical as it may seem, disarmament problems that are difficult to resolve are encountered at the national level.

It is a fact that the production of weapons, invention and development of new weapon types, and weapons modification, distribution, storage, servicing, and transportation have become in most countries an industry that constitutes a considerable sector of the national economy. Concentrated in this sector are an enormous intellectual potential, vast human resources, and property that is worth many billions. Let us also note that sales of weapons have become increasingly important with each passing year in the external trade balance of many countries. As a result, disarmament must be considered in the light of resolving a complex of problems of an economic, scientific and technical, social, demographic, and legal nature.

Of course, the freeing of astronomical sums of money as a result of reductions in expenditures for armaments and maintenance of armed forces will result in enormous budgetary savings; make it possible to utilize the creative potential of highly qualified personnel in nonmilitary production; and employ in the development of the national economy highly advanced technology and materials previously reserved for the military sector, etc. However, military production is a business that brings a substantial profit in the West, such as to the military-industrial complex, for example. Specialists involved with research for the military are compensated well for their labor and enjoy substantial prestige.

In connection with the world community's interest in dealing with the disarmament problem, the conversion concept has taken hold in a number of countries. Conversion is generally defined as a switch of a nation's economy or of its individual branches to the production of material goods having a peaceful purpose.

Conversion in the case of the Soviet military economy has become in our time more than an established scientific concept; it has also become a completely tangible reality of social development.

Thus, plans for the 1990-1991 period call for reducing the Soviet Union's military budget in the amount of 10 billion rubles—a reduction of 14 percent. This represents savings of 30 billion rubles for the current five-year period. Forty percent of the output of the "defense people" is already slated for "civilians." In 1995, this figure will attain 60 percent. In the forthcoming five-year period, nonmilitary production of military enterprises will amount to 250 to 270 billion rubles. Even this may not be the limit.

As a process involving realignment of a considerable sector of the national economy, conversion is a complex phenomenon—one requiring much planning. For this reason, its realization is associated with a multiplicity and diversity of schemes. Fundamental reorganization of enterprises subject to conversion and of individual branches requires suitable preparation in addition to a certain amount of time.

Prominent among conversion measures presently in progress are: transfer of combat materiel, equipment, and transportation items, and the sale of military property, to the civilian sector; manufacture of products for the national economy by "military" plants; utilization of military equipment, especially that which is transportation-related, in the interests of the national economy.

Within the framework of the INF Treaty, oilmen, geologists, builders, and power producers have already taken delivery of more than 110 large-capacity trucks previously employed as launcher chassis for shorter-range missiles and transporters. "Kranlod," a joint Soviet-West German enterprise, is successfully "converting" prime movers for medium-range missiles into powerful cranes. A number of plants that produced medium-range missiles are manufacturing metalworking machine tools and drilling equipment. It is expected that rear service organizations of the USSR Armed Forces will soon sell equipment and materials worth 1.5 billion rubles to civilian users.

The needs of the national economy are being successfully filled by military transport aviation. In this year alone, it will carry 50,000 tons of civilian freight. Its unique capabilities should tend to overcome the critical situation of civilian transport aviation, but cooperation between these solid partners will entail some conflicts. In addition, an idea has been put forth to employ the Air Forces to set up a passenger airline that would compete with Aeroflot.

Conversion of military production and individual branches of the military economy by its very nature is destined to become a new phase in mastering the attainments offered by scientific and technical progress. The products put out by enterprises undergoing conversion

should become a standard of highest quality, of fundamentally new consumer characteristics and competitiveness in the external market. In this case, however, conversion will not become a mere means of patching holes in our national economy. For example, there are grounds to expect a high level of return from "military" space in the matter of installing telephone service or mastering the reception and transmission of cable television programs on an international basis. Creation of the Energiya-Buran system resulted in developing more than 240 technological processes, 130 types of advanced equipment, and 100 new materials that can be utilized in various branches of the national economy.

The SU-27 fighter-interceptor created a sensation at this year's air and space show competition held at Le Bourget. Experts were unanimous in their opinion that it is superior to the world's known analogues. The success of the SU-27 makes it possible to form the following conclusions: First, a very high technological level exists in the USSR defense industry; second, the craft reflects a defensive doctrine, for the SU-27 is not an offensive weapon; third, the fundamental newness of the aircraft is conducive to competitiveness, which lays the foundation for selling it in foreign markets; last, the craft of and by itself is an example of a kind of conversion, since creation of the SU-27 provided the firm's designers with the opportunity to work on the creation of civilian airplane models S-80, S-84, and S-86. Fifty percent of the effort at the Special Design Office imeni P. O. Sukhoy is presently being devoted to conversion work.

Plans call for creating 3,000 new world class products; such is the conversion program for defense branches and their science. The development of complex science-intensive technologies will be central to this process, which is part of the general economic perestroika process. N. I. Ryzhkov rightly stated that we require conversion of minds as much as we do conversion of equipment. This alludes to the need for complete mobilization of the intellectual, scientific, and technical potential that the military branches can bring to bear on making conversion a reality.

Our hope is that conversion of the military branches of industry, geared to the development of the latest technologies and products that meet and surpass world standards, will assist our economy in taking its proper place in international division of labor and become an actual part of world economy, an equal trade partner of the world's leading economic powers.

At the same time, there is a need to endow conversion with precise and all-embracing legal regulation. The State Program of Conversion of the Defense Industry for 1991-1995 is being readied. Bearing in mind the conversion experience gained after the Great Patriotic War and the positive aspects of economic demilitarization that took place in some Western countries, this program should be backed by a judicial instrument. In addition to priorities of conversion task resolution, the program

should include; measures calculated to introduce financial responsibility in defense enterprises; terms specifying compensation for expenditures incidental to development of advanced technologies on the part of other users; and problems related to personnel retraining, reemployment of released specialists, standardization of pay, and social aspects. Provision must be made for: expansion of direct ties, trade agreements, and mutually advantageous cooperation; formation of concerns and associations; the possibility of internal competition between enterprises and participation by the "defense people" in establishing a socialist market. The program must necessarily be submitted to wide public discussion and consideration by the USSR Supreme Soviet for passage as an act of legislation.

The conversion process manifests itself at two levels: national and international. Under the conditions attendant to interdependency and communality of nations and integration into the world market, conversion as it proceeds in a particular country cannot fail but affect the world economy. Ever more obvious is the need for constructive international cooperation in the matter of conversion, such as in the development and comparison of national conversion plans, which would be an important contribution to strengthening mutual trust. Soviet leaders have expressed their willingness to cooperate with the U.S. in questions of conversion.

There is a possibility of developing a multilateral convention that would render obligatory for member nations a system of cooperation for conversion and rational utilization of released facilities, technologies, and human resources to establish a conversion economy. For example, international cooperation could be applied to the utilization of S-18 missiles to lift artificial earth satellites into space for monitoring the environment. The collective approach can be employed to render assistance to developing countries within the context of the program "Disarmament for Development," which is being modified into the "Economics of Disarmament for Development" program. Some aspects of military technology that can be used in a civilian economy will be placed on the help list for the benefit of developing countries. There is also merit in organizing an international fund to assist countries in realizing their conversion plans. The point is that conversion is a process that is destined to encompass all countries, not only the great powers.

The creation of a broad conversion program on an international scale, exchange of experience, rendering of aid, and offering of technical and material assistance should be placed under the effective control of a world association.

Disarmament has no limits. More accurately, it will no longer be required only when weapons as such are eliminated and their production banned. Also unlimited will be the process of conversion and cooperation practiced by countries to make the latter a reality.



## Letter to Ryzhkov Assails Ineffectiveness of Gospriyemka

904A0032A Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO)* in Russian  
No 9, Sep 89 pp 81-85

[Account of meeting of All-Union Directors Club held near Novosibirsk 20-21 May by L. Shcherbakova, letters to fellow club members and to Nikolay Ivanovich Ryzhkov by Igor Porfiryevich Shkurenko, general director of the PO "Aktyubrentgen," and opinions of other club members supporting the Shkurenko letters: "Is It Easy To Refute the Absurd?"]

[Text] The most lively discussion in the club has flared up over gospriyemka. The club discussed this topic immediately after its unexpected introduction. The enterprise directors did not believe that a measure of that kind could alter the situation. The economists tried to find a kernel of rationality in it without turning the unexpected measure away from the door.

This time, the discussion was initiated by the club's constant gadfly—I.P. Shkurenko, general director of the PO "Aktyubrentgen." When he got tired of waiting for adoption of a letter on this issue to the central authorities from the club, he himself wrote a letter to N.I. Ryzhkov, chairman of the USSR Council of Ministers, and sent a copy of it to his fellow members.

The steps that came in response did not concern gospriyemka. Commissions checking into Shkurenko's activity were literally prescribed at the enterprise. There was talk to the effect that he was creating a virtual opposition. How little it takes in our country to find yourself placed among those who think otherwise. Judge for yourselves. We are publishing the letters of Igor Porfiryevich Shkurenko both to his fellow club members and to N.I. Ryzhkov.

\* \* \*

Esteemed Fellow Club Members!

I decided to write you a letter, since according to the information available to me you have been actively objecting to gospriyemka's methods of operation at your enterprise. It seems to me that at this point we enterprise managers who are convinced that gospriyemka is an unnecessary and harmful venture, a "throwback" to bureaucratic-administrative methods of management, must unify our efforts in the fight to get rid of it.

Now, because the present situation is bringing about the prerequisites for the successful resolution of this question. First, because at all levels a great deal of criticism is being directed toward it. Second, the Law on Quality speaks about the possibility of its elimination, though, to be sure, rather skimpily and unclearly. To tell the truth, I would not place great hopes on that law, which from my point of view is a very bad one, a typical product of

Gosstandart. In short, I propose that we write a collective letter to the USSR Council of Ministers asking and perhaps demanding that gospriyemka be eliminated. I am not convinced that the Council of Ministers is the best place to make such an appeal, but I do not know of any other place. I would like to learn your opinion. It seems to me that the most effective way would be an open letter to Comrade Ryzhkov published in the central press. I am sending this letter to the directors of all enterprises I know of where gospriyemka has been introduced, suggesting that they express their opinion of the letter, and if they concur in it, then sign it. It would not be a bad idea if you sent me names and addresses for all enterprises you know of—the more signatures the better. If there are a great many suggestions for improving it, then we might agree to meet someday in Moscow and to agree on the text in a face-to-face meeting and all sign one copy. I would undertake to obtain a place where we might meet.

At the same time, I would like to make one more proposal to you. It occurred to me that enterprise directors should join their efforts in combating the present system for the setting of standards in the USSR. In my view, this system is very, very bad and is doing immense harm in our advancement and in our practical effort. But to simply criticize this system, even collectively, is a fruitless business, this can be done to infinity. Which led to the idea of a number of enterprises chipping in money, of using that money to hire a group of highly qualified specialists, and in a year or 1.5 years preparing an alternative conception to the system for setting standards with which one might go to the government. I may be naive, but it seems to me that if we had an alternative conception that had been thoroughly worked out and which could be popularized through the mass media, using the "PR" potential of a number of civic associations and also deputies of the Supreme Soviet, we might get it implemented. It seems to me that each enterprise's contribution should be approximately 5,000-10,000 rubles.

Please say what you think about this and also about the specialists you think might be hired for this project.

\* \* \*

Esteemed Nikolay Ivanovich!

We, directors of various enterprises in the country, would like to raise the question of the role of state acceptance in improving the quality and level of products produced and of its influence on the operation of our enterprises. We will speak frankly. Gospriyemka, conceived as a temporary administrative measure to improve the quality of products, has been performing that task to a very small degree, but on the other hand it has been able to slow down scientific-technical progress and the development of new products to a very great degree and has very substantially hindered the normal operation of enterprises.



From the very beginning of its existence, gospriyemka, under the "sage" guidance of Gosstandart, was oriented not toward solving the authentic problems of quality—reliability, serviceability, and the technical level of products, but toward "paper" creativity, i.e., toward the literal, mindlessly formalistic correspondence of products to the numerous GOST's, OST's, technical specifications, guides and manuals, and so on. And this at the same time when the top officials of Gosstandart themselves acknowledge that the quality of most GOST's is extremely low. This was clearly stated by Comrade Kolmogorov, Gosstandart chairman, in the order entitled "On Measures To Eliminate Pseudoscientific Proliferation of Paperwork Related to the Setting of Standards" (9 June 1987, No 252). Nevertheless, according to gospriyemka personnel themselves, they received repeated instructions as to completely unswerving and literal adherence to GOST's, even when they see that they are incorrect. It would be difficult to overestimate the harm that has been done to the economy by this position. Hundreds and thousands of highly qualified specialists have been taken away from creativity and transferred to the shuffling of paper. More and more new GOST's are coming out, more and more new discrepancies are being picked up, and for all practical purposes there is no end to this process. Whether gospriyemka is right or not, it has the last word. There is no objective arbiter here at all.

The basic direction in the work of gospriyemka is interdiction based on the simplest and most insignificant defects (scratches, labeling, and so on) as well as on the quality of paper. Gospriyemka personnel are evaluated on how active they are in issuing prohibitions. Attempts of individual officers of gospriyemka to help in solving production problems are regarded as some kind of sedition. Indeed, gospriyemka's very incentive system, when the quality of its work is being evaluated according to the drop in the level of claims from the previous period without any relation at all to the number of products produced, unambiguously oriented toward prohibitiveness—the fewer the products produced, the greater the likelihood of fewer complaints.

Gosstandart has not been coordinating the work of the gospriyemka units. Disagreements quite often arise between the gospriyemka units of the consumer and the supplier in evaluating the quality of products and in the interpretation of particular provisions of the documents. As a rule, it does no good to ask Gosstandart to decide which of its subordinate gospriyemka units is right—"let them work it out themselves." It is the enterprises which suffer.

Gospriyemka completely ignores the interests of consumers. More often than not, the particular consumer is not interested in specific parameters, components, and the product's esthetic indicators. Quite often the consumer asks for changes of some kind to be made. All of this is rejected, since it is not written down in the GOST.

We are firmly convinced that gospriyemka must be done away. The alternative to gospriyemka in guaranteeing

product quality could and should be a considerably greater financial liability of the supplier for producing rejects—this is a real and very effective economic rather than administrative instrument of quality control. Penalties for rejects, most of which must be credited to the budget, plus the saving from elimination of gospriyemka, could add an appreciable amount to the budget.

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#### [Supporting Opinions]

The following club members backed up the letters of I.P. Shkurenko with their own opinions:

N.M. Pichugin, general director of the leather footwear NPO (Kursk): "State acceptance represents no one except Gosstandart. It is degenerating into a formalistic organization."

A.N. Abramov, general director of the PO "Ryaztorfmash" (Ryazan): "Nothing has changed with respect to quality since it was introduced. There are only the additional expenses of maintaining its staff."

A.T. Kholodkov, director of the plant "Kremniy-polimer" (Zaporozhye): "I fully share the proposal to do away with gospriyemka. A strange situation has nevertheless come about: someone has created an absurdity, and we are looking for arguments...."

K.P. Altzman, combine director (Ulan Ude): "What wastefulness is still going on: 10 percent of the engineering and technical personnel of our branch have gone off to gospriyemka!"

Yu.I. Tychkov, deputy minister and senior member of the Directors Club: "I will introduce dissonance in your harmonious chorus, since I now represent the bureaucratic apparatus. One might think that there are no problems with product quality in the country. Let us speak openly: There are many products bearing the Quality Emblem, but they are not buying them abroad. Only 2.7 percent of exports are products of machinebuilding! Given the state of our market, everything is purchased that goes there. So, there are no alternatives to an independent appraisal of quality. It is absurd for gospriyemka to be subordinate to Gosstandart. It must represent the interests of the consumer. I think that the director should be guaranteed the right to countersign the documents of gospriyemka, just as in bookkeeping departments."

L.B. Kogan, director of the plant "Vodopribor" (Moscow): "Why demand arguments for or against gospriyemka when it was introduced without any sort of arguments at all? Our effective engineers went off there. Will they come back to some specific activity? Inspection functions have been taken to the point of absurdity in our country. Gospriyemka is an example of this...."

\* \* \*

The club summarized the arguments at gospriyemka:

Inspection must be by the consumer. Military acceptance performs the functions of that kind of inspection, but gospriyemka does not.

It is aimed at strengthening administrative dictate as against economic methods, it is formalistic, and the effort comes down to paper-shuffling.

It duplicates the OTK. This is an unnecessary waste of the money of the state and it takes people away from production.

It is especially absurd in branches where there is the acceptance of the consumer, for example, in light industry. In essence, it is not accountable to anyone.

Gospriyemka is not comprehensive, it does not extend over the entire technological chain. It is a hindrance in organizing a product's production.

The club supported the basic points made in the letters of I.P. Shkurenko.

\* \* \*

The 12th regular meeting of the Directors Club was adjourned. In October, the club will meet in Riga.

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## INVESTMENT, PRICES, BUDGET, FINANCE

### Investment Cuts Threaten Socioeconomic Development

904A0031A Novosibirsk *EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA (EKO)* in Russian  
No 9, Sep 89 pp 69-72

[Article by K.K. Valtukh, doctor of economic sciences, professor, Institute for the Economics and Organization of Industrial Production of the Siberian Branch of the USSR Academy of Sciences, Novosibirsk: "Curtail Investments?"]

[Text] Striking, but not sufficiently professional articles by journalists on behalf of economic science have engendered in society hope for a miracle: The less effort at economic development, the better the result will be. The situation is very serious: the Congress of People's Deputies has adopted a decision turning these hopes into a directive sent to the operative agencies. The decree of the congress entitled "On the Basic Directions of the USSR's Domestic and Foreign Policy" prescribes: "Substantially reduce the total volume of capital investments for productive purposes."<sup>1</sup>

Evidence of the disastrous nature of that kind of economic policy has been repeatedly published in the pages of EKO (see, for example, No 3, 1982, pp 3-84; No 2,

1986, pp 17-32; No 9, 1988, pp 3-22; No 8, 1989, pp 3-23). Our staff is ready to present elaborate arguments and proposals aimed at its radical alteration at this decisive point. But even now I want to express my resolute disagreement with the prevailing tendency to continue to cut back investment activity in the country.

The essence of the main problems in the country's further economic and social development lies in the following: tens of millions of highly efficient new jobs have to be created, and that requires intensive investment activity in the spheres of both material and non-material production, a rapid growth of real capital investments in production combined with an updating of their technological content and their sectoral and reproductive structures. A corresponding rapid growth of production capacities and a qualitative transformation of technologies in the capital goods complex are also required.

Tens of millions of people are operating technologies that are destroying the environment. These technologies have to be eliminated from the economy on a large scale and important measures taken to restore the components of the environment already destroyed. The problem of the environment was central in numerous speeches by people's deputies in the congress. But in the decree we have mentioned one can find only the directive to complete the drafting of the nationwide environmental program by 1990. Unfortunately, there still is no system of specific projects to eliminate ecologically unacceptable technologies and restore the environment. And that is why there are no significant state estimates of the corresponding productive investments. I doubt that they will be available even in 1990. I can offer an expert assessment: If the present volume of production in the country were achieved in such a way as to meet environmental requirements, this would necessitate approximately twice the investments that have been made since the beginning of the sixties.

Millions, if not tens of millions of people are operating technologies which are directly harmful to their health. This would seem to apply to more than half of the labor force in industry as well as to many workers in other sectors. Replacement of their jobs with new ones is one of the conditions for preventing further degradation of the health of the population. It is all the more necessary for improvement of health.

Let us assume that the decisions already made to stimulate effective use of worktime on the scale of the entire country have already been carried out. Then we would observe large-scale hidden unemployment, i.e., a large-scale shortage of efficient jobs. These processes have already begun. The problem of unemployment will inevitably be particularly acute for young people. It is well-known, when young people do not have work, the social base is created for gangsterism and interethnic outbursts. Is any reminder needed that this is again confirmed by the events in Central Asia and certain other regions of the country?

The congress has adopted one of the absolutely necessary decisions: raise the minimum level of pensions to a level at which it is at least possible to somehow make ends meet without falling into absolute poverty. Performance of just this one decision requires a redistribution to pensioners of the present consumption fund (which is growing very slowly), i.e., a reduction of the absolute share which other strata of the population have in it. If a decision is not to cause social friction, then the rise in the standard of living of certain strata has to be accomplished not at the expense of others, but within the limits of the total rise of the standard of living as a whole. That in turn requires a substantial expansion of the volume of production, which is impossible without technological reconstruction.

We can estimate from the available statistics the level of requirements of the population only for the mid-seventies. According to estimates which in any case are not too low, the present level of satisfaction of those requirements in our country is no higher than 40 percent. Which means that the total volume of goods for consumption must be increased by at least 2.5-fold, and that does not take into account any further population growth or development of the needs of the population. I put the question: Which of the journalists (or indeed of the people's deputies) will be so bold as to say that achievement of that level of production is possible without changing the technological system?

The congress adopted a decision for additional development of housing construction and construction of other nonproduction projects. Its performance requires in turn a rapid growth of capacities for the production of building materials and equipment for construction.

This list is far from complete.

The decision of the congress we have referred to is incompatible with its own decisions: "Particular attention should be paid to radical technical retooling of production on the basis of the most recent advances of Soviet and world science, application of progressive processes..."; "there has to be a radical renewal of the economic structure"; "conditions have to be created for full and efficient employment of the population." None of the major decisions of the congress on social affairs can be carried out without technological renewal and a growth of capacities of sufficiently large production complexes; and the totality of these decisions cannot be implemented without a virtually complete replacement of the technological system on the scale of the national economy. I will make this qualification in order to avoid misunderstandings: certain elements of the present system will, of course, be preserved, but their share is not large.

The problems of transformation of the economic mechanism are a separate matter. I will say only one thing: They must pursue not only and perhaps not so much the goal of improving the utilization of the productive plant in place, but also an effective large-scale transition to the

new technological system that incorporates those advances of scientific-technical progress which have the highest efficiency.

Under present conditions, the choice does not exist between technological reconstruction on the one hand or solving social problems on the other. The only choice that is offered is quite different: either technological reconstruction and then on that basis, and insofar as it is accomplished, creation of resources for solving social problems, or renunciation of technological reconstruction and then an accelerated degradation of society.

The first discouraging evidence to the effect that this is precisely the alternative is well-known: The educational reform is failing, the famous Far East program with its manifestly social orientation is being revised, the issue of restoring or at least of halting further reduction of the surface area of the Aral Sea is not even being taken up, and so on.

In conclusion, I will cite some data for reflection. In 1987, the total volume of capital investments (private and government, not including growth of inventories) in the United States was \$746 billion (SURVEY OF CURRENT BUSINESS, No 7, 1988, Tables 1.1 and 1.3). That same year, the total volume of capital investments in the USSR amounted to 205 billion rubles. Investments in housing construction were as follows: \$227 billion in the United States (private investments alone) and 34 billion rubles (all investments) in the USSR. At the same time, there is the well-known difference both in the quality of the results of the investments and also the fact that many types of Soviet equipment cost more in rubles than the analogous and far higher quality equipment of the United States in dollars. I will mention electronics. The reader himself can draw the remaining conclusions.

#### Footnote

1. PRAVDA, 25 June 1989.

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## REGIONAL DEVELOPMENT

### Economists Debate Merits of Separate Republic Currencies

904A0035A Moscow PRAVITELSTVENNYY VESTNIK in Russian No 21, Oct 89 pp 6-7

[Roundtable conducted by Yu. Popov and L. Cherenko: "Republic Currency?"]

[Text] "One's own currency".... Some regard this idea, which was born in the Baltic area, as one of the indispensable attributes of republic sovereignty. What is the economic purport of this scheme? Based on the state of the country's economy, the principles of regional cost accounting, the general laws for the development of the

monetary system, and the historical and present experience of the world, our roundtable participants—M. L. Bronshteyn, Tartu State University department head; V. V. Ivanter, doctor of economic sciences and a department manager in the USSR Academy of Sciences Institute for Economics and Forecasting Scientific and Technical Progress; L. N. Krasavina, doctor of economic sciences and a Moscow Financial Institute professor; V. L. Perlamutrov, doctor of economic sciences and a laboratory manager in the Central Economic and Mathematical Institute; and V. S. Pashkovskiy, department manager in the Scientific Research Financial Institute—discuss this question.

M. Bronshteyn: As chairman of the USSR Supreme Soviet subcommittee for regional cost accounting, I have occasion all the time to run across this question and to weigh various proposals. Its history is as follows. More than two years ago when the concept of republic cost accounting first appeared in Estonia, its authors proposed—among other things—the principle of establishing one's own currency system or banknote. At that time, I supported the main conceptual propositions in republic cost accounting but I regarded the establishment of one's own currency unit with a critical eye.

What is a republic currency?

First of all, it is not currency in the true meaning of the word. It is nothing more than a method for defending the domestic market. However, the idea that we should first try to move to a convertible currency, thereby paving the way to a convertible ruble, was also expressed. From this, it is clear that we were not only talking about a republic task.

On this score, I had certain doubts because the path to the ruble's convertibility is, generally speaking, a rather difficult one and it becomes even more difficult within the framework of an individual republic that does not have the raw material resources for this (these are practically the only things which we can now steadily sell abroad).

However, the conceptual approach to this problem later began to change somewhat. This was revealed especially clearly over the course of the last year: The need to really have one's own currency unit in order to protect one's own market from so-called "buyers [pokupant]" has appeared. The word "buyers" appeared for the first time in Estonia; you understand that it arose because of the notorious scarcity of goods.

A "buyer" in any country is a welcome "commodity" tourist but ours is one who encroaches on your piece of sausage—he is your main enemy. He is the same for a Muskovite, for an Estonian and for any inhabitant of a place in the country where one is just a little bit better supplied with goods.

When we began to calculate various versions of republic cost accounting, we were convinced that even if we should manage to put our situation into somewhat good

order and achieve a greater balancing of commodity and monetary amounts, this would provide us nothing: The entire difference would be "eaten up" by a newly-arrived buyer. Here is an example from last year. Our ratio between the increase in wages and the increase in the production of consumer goods was better than in other places: We even went through a period where the production of consumer goods was slightly ahead. We were able to bring the increase in wages somewhat to a standstill because its level was relatively high here; this means that these questions were not as acute in our republic.

What did this give us? The number of "buyers" increased sharply. Whereas we had soap, washing powder and various knitted fabrics until recently, all of these have now begun to disappear in connection with the sharp inrush of people from other regions of the country. Protective measures began to appear: Initially, we began to sell in accordance with certificates and passports. Essentially, our own "custom-house" appeared. They immediately indicted us for this. However, even in Moscow, enterprises distribute many goods and this means a plant's entrance check-point is also a distinctive type of "custom-house." Why should they upbraid us because we do not sell goods to visitors?

Of course, all this creates conflict situations. In my Tartu, where they were selling sausages, meat and certain clothing only for certificates, Pskov visitors said: "Now, try coming to us!" They travel from Estonia to Russian oblasts to sell meat—the price is higher there. It has begun: the puncturing of automobile tires and other things.

That is why I would call these measures an uncivilized form of defending a domestic market. Everything that we are now doing in the country in this sense—introducing coupons and certificates—is the most outrageous and uneconomical way to protect a domestic market. Each has his own coupons. Let us introduce a rationing system everywhere....

Regarding our proposal, it assumes a more civilized way to solve this problem. Please come, dear guest. Travel about the stores and buy; to do this, however, exchange the ruble into our currency unit according to an exchange rate that corresponds to our greater supply of consumer goods—a supply that is linked with several successes in territorial cost accounting. If this is not done, our inhabitants can say: "What does this cost accounting mean to us; what is it providing us?"

The idea has appeared: Whereas a ruble is now conditionally equal, for example, to one krona, it should be exchanged for 0.7 or 0.8 krona depending on consumer demand and commodity flow. Exchange the ruble, travel about the stores and select—although this will cost you a pretty penny.

L. Krasavina: What can the consequences of introducing republic currencies be? The normal economic ties between republics will be disrupted. Already, they are

not being implemented completely correctly. This must be taken into consideration. It is necessary to establish some kind of exchange ratios. Who will be responsible for quoting these currencies? And, generally speaking, is it really normal to have several currencies within one state? Fragmentation into currency segments can lead to disintegration. History has always pushed currency matters on a path away from futile splintering and toward unification. A single currency is the symbol and indicator of a national economic complex.

We have talked a great deal about exchange relationships and about the conversion area. However, the main thing is an integrated national economic complex which should be serviced by a single currency.

Furthermore, the epopee of local currencies occurred during the civil war—also, the flight from inflation. In Central Asia, pieces of a yellow oriental gown with a stamp served as money; one's own currency was everywhere—in the Far East and in the Transcaucasus republics. Thus, this idea is not a new one. It results from a crisis situation. The experiences from parallel currency circulation have shown a negative result: Prices were expressed in several currency units; from this came fluctuations, disorder and dissatisfaction among the broad masses—and because of this—instability. The criterion of cost measures should be a single one. It is no accident that Lenin's currency reform plan for 1922-1924 was based on the principle of a unified currency system. Finally, about the common European currency—the ecu [European currency unit]. Modern foreign practices talk about the tendency to establish an international credit currency....

Republic currencies are a step backward. The partial transfer of the right to issue currency to the union republics will undermine the principle of issuing currency by a single issuing bank. This can lead to an increase in the amount of money in circulation at the republic level and then it will begin to unfold at the all-union level. Meanwhile, we are now talking about toughening currency issuing principles and about how the central bank has finally acquired a certain independence from other agencies, especially from the Ministry of Finance.

Finally, there is another item having possible negative consequences. Republic currency is designed only for those living in the republic. This is the path to alienation, separation and inter-ethnic discord.

V. Ivantsev: It seems to me that the problem has three aspects. First, there is the ritual one: flag, anthem, seal, and currency. However, sovereignty by itself does not grant the right to issue money. The appearance of local currencies grants no one an opportunity to balance the market. The second aspect is the administrative one—local currencies as a lever for regulating demand. In this sense, it does not differ from registration, coupons, etc. I would say that the effect of this type of currency is equal to the effect of a registration. When it occurs, the price of

the registration always appears and, if there is a coupon, the price for it also will appear.

It is impossible to regulate the economy this way. This is the path to its destruction. We have used such administrative methods for many years and the destruction of our economy has also taken place with their help. That is why, although emotions evoke the desire to be protective, the selected method cannot be a dependable one.

There is also a real economic aspect here—the active or passive balance in inter-republic relations. This financial problem will remain completely independent of whether the market is destroyed or filled. This is a normal economic problem. What should be done about it? I would say this: A civilized economy strives for an active balance. Now, however, in an unbalanced economy, an active balance is turned over with God's whip, that is, a significant active balance is also a problem. From this point of view, we should look at how this balance should be regulated. Can this be done with the help of republic currencies? Yes, it is possible. This is one way. However, is it the best? Is there an alternative way to protect the market? I think that there is. This way is the banking system. It was intended just for this regardless of what kind of market we are talking about—a common or regional one. This is the normal civilized way. Moreover, in countries with their own currency, it also has a partially ritual nature in a number of cases and the banking system assumes the responsibility for protecting the market.

Generally, speaking, regional currencies are an exotic idea: We know countries that possess full sovereignty and use a foreign currency. There are historical examples of this. There is still no opposing example, although I will agree that I do not reject the posing of the question itself because of this.

However, let us examine an extreme situation: Estonia has to introduce its own currency in order to protect its market. How much will this cost? Quite a bit of assets. Switzerland with its currency potential can permit itself its own independent currency. Countries, which possess enormous economic and export potential can also provide for the introduction of their own currency. However, a small country must expend a substantial part of its resources to do this, that is, remove them from consumption and accumulation. Only this way is it possible to attach stability to a currency. This is a necessary step because not a single sensible person will take another currency now. In this regard, we are not saying that a Latvian or a Belorussian will not take Estonian money because of patriotism; no, patriotism and money are often contradictory things. A Pole does not prefer the dollar to the zloty because he lacks patriotism. On the other hand, patriotism does not force him to take zlotys if he can take dollars. Why? Because a hard currency always has an advantage over a weak one. There are no emotions here.

V. Pashkovskiy: What is my attitude toward the question of a national currency? In general, this is interesting.

From the point of view of a "currency" specialist, it is, of course, unacceptable since any supplemental currency, which weakens the main one, strengthens the inflationary process. If currency is issued in the different republics, the ruble will be weakened: Any surrogate currency weakens the main currency. Either this should be a completely closed market with its own coupons and currency or it is necessary to reject this undertaking and remain part of the common market.

You say that national currencies are being introduced as a defense against the depreciation of the main currency. However, I would not say that this goal will be achieved. First, a well developed closed market, which supports itself, is required here. However, if it does not exist, you will run into the appearance of a mass of illegal exchanges where quotations will continuously change. It is not enough that we have now launched ourselves into commodity affairs; it is now necessary to try to get at the jumble in currency matters: It is necessary to continuously recalculate currency according to changing rates.

M. Bronshteyn: Indeed, a whole number of problems are arising. You see, if we look at the phenomenon from the scale of the entire country, one can essentially say that the introduction of republic currencies is the path to nowhere. Let us assume that each region will begin to protect its domestic market using this method: Moscow will introduce, for example, its own currency unit and separate units will appear in Leningrad, Minsk, Vilnius, and Riga. Here is the first problem: the appearance of a multitude of currency units for a closed market.

The second item, in connection with which I have taken a more conciliatory position than before regarding the idea being discussed, consists of the following: If one would introduce one's own currency unit, it should be done only after serious preliminary preparations. This requires consultations with leading specialists on currency circulation. We do not have these in the republic, generally speaking.

You see, one must know the commodity flow and have a picture of where people go to buy what. Estonians travel to Russia for automobiles: Our supplying of the population with passenger cars is more than twofold greater than the union average but we receive the same assets. We do not produce refrigerators and televisions in the republic but the demand for them is high. They come to us for clothing and knitted fabrics; and our nearest neighbors—for that same sausage. It is necessary to know all of these flows but, you see, they are not being processed by our statistical system, generally speaking.

Therefore, when the question rose to the practical plane and the discussion concerned the introduction of a currency unit on 1 January of next year, I said that this should not be done in any way without serious preparations. We have still not arrived at a final decision about whether or not to print our own currency. In our searches for other ways, they talk about certificates, in accordance with which scarce items will be issued, and about credit

cards—true, for a different purpose than in the West—to protect the domestic market. Of course, the introduction of credit cards and the entire system of electronic tracking is a rather expensive affair, although anonymity disappears with it and the struggle against speculation is simplified. In any event, we will have to come to credit cards at some time.

V. Pashkovskiy: The reasons for trying to introduce credit cards are interesting. It would permit more than the regulation and seeing of supply and demand. Enormous capabilities for the accounting of incomes and expenditures and for the establishing of barriers to theft are included in it.

M. Bronshteyn: When we in the USSR Supreme Soviet adopted in the first reading the concept of republic cost accounting, the text had no provision about one's own currency. True, the right to regulate the financial and credit system was written in it. In other words, one can avail oneself of it and one may not avail oneself. The question now is whether it is necessary for us to realize this right. Everything will depend on whether or not we stop the further fall in the ruble's purchasing power. This is now the key question. One cannot eliminate centrifugal tendencies by appeals, but we will strengthen the union market first of all.

Meanwhile, every committee and every commission in the Supreme Soviet is dissatisfied when discussing the budget: The agrarians demand another 10 billion rubles; others also ask for them. Everyone is playing for an increase, and no one—for a decrease. You see, this will lead to an overall sharp reduction. If this trend toward demand and the insatiable appetites are not overcome and if we are not able to resist social demagoguery, I see quite clearly that each republic will begin to defend its own market with its own currency unit.

We are not talking about currency; we are very far from currency. We are talking about the problem of the market's general stabilization—the regional and republic markets. Our center, the USSR Supreme Soviet, could demonstrate the strength to halt the market's destruction process that is now taking place. Then it would be necessary for us in the republic to think about the pluses and minuses of our plan. However, if this does not occur, a strong desire to establish one's own closed market will appear.

V. Perlamutrov: I first encountered the idea of a republic currency when I was a postgraduate student at the beginning of the Sixties. Czechoslovak comrades were studying with me. At the time, the contradictions between their republics were increasing. In Bratislava, they say, articles are appearing on the need for a Slovak currency. At the time, this seemed unusual to me. Twenty years have passed. A year ago, I visited an economic institute in the Czechoslovak Socialist Republic and asked: How have things turned out with your idea on currency? They answered me that the most important thing, which the country's leadership was able

to do, was to bring the republics' interests into conformity and to improve the economy. Any Slovak now says: "What are you talking about—our own currency? This is simply nonsense!"

I think that we are now traveling the same road—true, much later by far. We have the following choice: Either we regulate the economy and then Estonians, Lithuanians and other peoples will say after a certain time: "What are you talking about—our own currency?" Or the economy and the entire country will consist of individual regions with their own "currencies."

V. Ivanter: In my opinion, the solution can be found in a substantial restructuring of our banking system. The republic's state bank should be the basis for the republic's cost accounting. It is now but only in name. I am talking about content. The republic's state bank can be the one which should have relations with the central bank.

In my opinion, we should pay primary attention today not to the question of whether or not we have a deficit budget but to what needs to be done to have strong deflators in the economy. There are still no strong ones as yet for wage payment funds nor deflators which limit investment and consumer activity. Their presence would lead to the balancing of the market and, this means, to the normalization of the banking system which is capable of regulating relationships between regions. The negative processes in the monetary and financial area can be localized but only through joint activity by the center and the republics. The republics cannot achieve this without the center and the center cannot construct a single currency system without the republics. It can only be established together. This is not a slogan but a reality.

M. Bronshteyn: I completely agree with you. However, my main thesis consists of the fact that I still do not see strong deflators at the center, which would limit investment and consumer demand. On the contrary, the increase in incomes is outstripping more and more the increase in the production of consumer goods, especially food.

V. Ivanter: Being a USSR people's deputy, you are also essentially a representative of the center. We can also ask you why the optimum solutions have not been found there....

L. Krasavina: Regarding alternative concepts to republic currencies, it seems to me that all our roundtable participants have amicably arrived at the need for an anti-inflationary policy. In this regard, individual measures provide nothing here. However, stabilization programs require a great deal of time although there should be some positive changes for the better during each stage. We do not sense the step-by-step development of a program when we hear speeches in the USSR Supreme Soviet and we do not see a systemic approach.

M. Bronshteyn: What do you advise the country's Supreme Soviet to do?

V. Perlamutrov: One must sharply reduce incomplete construction—and not by 5 or 10 percent. The main inflation comes from this. If we build for ten years instead of two, the builders will be paid fivefold more money than they have earned.

What distinguished the transfer to NEP in the area of production? The state said: I can maintain a third of the enterprises but the others must either close or be leased. This is the same situation now in the construction area: One cannot make such enormous capital investments and receive such a small return. The strength or weakness of the ruble lies primarily here.

M. Bronshteyn: During the election campaign, I also spoke in favor of a threefold reduction in investments and the covering of "incompleted construction work."

V. Perlamutrov: Furthermore, working capital, or the stocks in enterprises, is growing more rapidly than production volume. At the beginning of the Sixties, the state's entire working capital was 85 billion rubles. It has now grown eightfold while the increase in production has only grown threefold. What an enormous outstripping of financial expenditures! This is the second channel of inflation.

When Japan emerged after the war from dependence on its own path of economic development, Japanese specialists said that a strict credit regime was necessary for enterprises. Of course, immediately reducing credits twofold means to rein in the facility. It is necessary to develop such a program over two-three years: Initially, credits will be reduced by 20 percent, by 30 percent during the next year, etc., so that the enterprise would know that it soon will not be able to count on credit generosity. Then, it is compelled to replace technology or to undertake something else. If it relies all the time on the bank providing, there will be no cost accounting either in the enterprises or in the regions.

We must establish a powerful centralized banking system headed by a management board that is not dependent on anyone: neither on the prime minister nor on the president. Our Gosplan is at the top, but it is only interested in volumes; under it, is the Ministry of Finance which is obligated to finance its measures; at the very bottom, is Gosbank which is required to service both Gosplan and the Ministry of Finance. In a normal economy, everything should be the reverse: The national economy has this sum of money and it is necessary to live within one's means: to build or not to build, to expand or reduce, to close or open. Then, money will become money. I am in favor of the Marxian formula: Prices are loving looks which goods cast at money. This is the normal economic situation.

The stereotype of management in material terms comes from war communism: A commodity is a thing but money is nothing more than what we ourselves print.

If we have that kind of bank about which we are talking, it will set sharp boundaries for all economic decisions.



Then, ineffective economic decisions will not occur. If our enterprise pays for itself over 20 years, it will be impossible to give money for this purpose in this economic situation even if it is a golden one. The main center for managing the economy is the monetary and banking one. Otherwise, republic currencies and customs boundaries between regions will appear.

V. Pashkovskiy: It is quite evident that we need a sound program of anti-inflationary measures at the USSR Supreme Soviet level in order to affect the Ministry of Finance, banks and Gosplan; in a word, a state-program is needed and its development should not stretch out for a year or two.

M. Bronshteyn: Thus, we have come to the conclusion that the appearance of the idea of republic currencies has primarily been evoked by the disorder in the "big kingdom"—although national elements also have importance.

V. Ivanter: Each of us wants to have a hard currency. Muscovites do not differ from Estonians in this....

M. Bronshteyn: I have expressed all the conclusions, which have been arrived at here, in discussions with my comrades in Estonia. Indeed, if the Baltic enters onto this path, others will follow its example and all of us will harmoniously return to an almost futile separation of markets. However, when we talk about inflation and economic instability, it turns out that all of this has one serious consequence—centrifugal tendencies will be sharply strengthened up to and including calls to leave the union. The country has no normal market and the individual cannot issue his money normally. The illusion arises that the market problem will be solved by isolation. If one looks deeper, it is necessary to say that the bonds between the republics are extremely important and solid although there is no equal partnership with the center. If we manage to solve global economic problems and to insure the establishment of a single union market, where all economic subjects and sovereign republics will act as equal partners, then the problem of "one's own" currency system will be illuminated differently. However, only a strong ruble, which is convertible in the future, can be the common equivalent.

#### Conference Discusses Separate Baltic Currencies

18200476 Moscow LESNAYA PROMYSHLENNOST 7  
Nov 89 p 1

[Unattributed report: "Will There Be a New Currency?"]

[Text] Recently banking specialists from the Lithuanian, Latvian and Estonian SSRs held a conference to discuss the creation of separate republic financial systems and the organization of banking activity. Participants at the conference sent a memorandum to the governments of the three republics. The document establishes the necessity to introduce republic currencies and to determine the principles for an exchange rate between them and with other Soviet and foreign currencies. In this regard, they propose the adoption of republic laws "On the Financial System"

and "On Banking," as well as the implementation of a program for printing currency notes and for coins and the creation of a mechanism for protecting the internal market and republic financial systems.

#### 23 October Press Conference by Estonian Premier Reported

18200475

[Editorial Report] Tallinn SOVETSKAYA ESTONIYA on 24 October 1989 carries on page 1 a 700-word account of a 23 October press conference held jointly by Indrek Toome, chairman of the Estonian Council of Ministers, and Tiit Vyakhi, chairman of the Estonian State Transportation Committee. Toome answered journalists' questions on the drafting of legislation related to the IME [Self-Managing Estonia] concept. In addition, he briefly summarized efforts made to orient the republic's ministries toward broad political and economic guidance and away from administrative regulation of enterprises. He also discussed the results of the 19 October meeting in Riga of the three Baltic premiers and touched upon the question of a separate Estonian currency.

Toome stated that one of the problems concerning efforts to draft new legislation is that the proposals put forth under the plan for Baltic economic autonomy are being met with "strong resistance" in Moscow. A second problem is that republic officials had overestimated their ability to draft all the necessary bills concerning republic self-management. He noted that there are "tens of thousands" of bills and normative acts that need to be reworked, if not totally rescinded, and this will take "enormous time and effort." A third issue concerns the transfer of union-level enterprises to republic control. Toome stated that "he personally doubted the need to transfer all of those enterprises to republic subordination in the near future."

On the subject of a separate Estonian currency, Toome outlined two proposals. The first would introduce into circulation "payment checks" starting next year. The second proposal calls for the introduction of a separate currency as of next July. Toome indicated that he favored the introduction of a separate currency first in the form of the payment checks. If that system proved successful, he said, "it would not be too late to replace them with a separate Estonian currency."

#### Analysis of Reforms in UkSSR Industries Reveals Shortcomings

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Russian  
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[Article by V. Stetsyura, candidate of economic sciences: "Lessons of the Economic Reform"]

[Text] Experience in mass work under full cost-accounting and self-financing conditions is emerging. A total of 76,000 enterprises, organizations, and kolkhozes,



whose entire personnel consisted of about 51 million people (40 percent of the total number of people employed in the national economy), worked on the principles of the economic reform in 1988.<sup>1</sup> During the first quarter of 1989 all material production sectors have completed the transition to full cost accounting and self-financing and many organizations of the nonproduction sphere operate under new conditions of management.

The mastering of new forms and methods of management occurs against the background of aggravation of several negative processes in the economy, in particular, commodity shortage, disproportions between financial and material-physical flows, inflation, and so forth. In connection with this a question arises as to how the facts concerning the transition to the self-financing mechanism and the aggravation of economic problems and difficulties are correlated. Of course, it is still early to draw final conclusions. As yet not all the elements of the new economic mechanism envisaged by the package of documents on the radical reform in economic management operate today. However, those that have already been introduced manifest themselves quite definitely in practice. This makes it possible to draw some preliminary conclusions on how the realities of the economic reform coincide with its design.

In order to more clearly represent the processes occurring under the effect of the new economic mechanism, we will use the materials of the survey conducted in accordance with the assignment of the USSR State Committee on Statistics. In particular, they apply to the operation of 69 industrial enterprises and associations transferred to full cost accounting and self-financing (located on the territory of the Ukraine).

#### **State of Planning Discipline Under New Conditions of Management**

The plans for industrial output in value terms initially adopted by the indicated group of enterprises and associations for 1988 exceeded control figures by 837 million rubles. During the first 6 months the plans for output by enterprises were lowered by 809 million rubles. As a result of these corrections, by the middle of 1988 plans exceeded control figures by only 28 million rubles, which comprised 0.6 percent of its total volume, whereas production volumes exceeding the control figures of ministries by 19 percent were determined in initially adopted plans. Output plans for 1988, which were 3.3 billion rubles, or 0.4 percent, lower than envisaged by the initial data, were finally adopted by the country's enterprises transferred to full cost accounting.<sup>2</sup>

The low discipline of deliveries is one of the reasons hindering the adoption of real stepped-up plans by enterprises. Nonfulfillment of contractual obligations significantly affects the course of realization of production programs and leads to a reduction in output volumes. During 3 years of the five-year plan the country's industrial enterprises underdelivered products based on

contracts in the amount of more than 30 billion rubles, including in the amount of 8.6 billion rubles in 1988.

The initiative of enterprise collectives in the adoption of high plans was hindered by the procedure, which had existed before the second quarter of 1989, of additional material incentives for labor collectives for a 100-percent fulfillment of contractual obligations. The application of such a procedure under conditions of directive centralized planning was aimed at strengthening contractual discipline in an administrative manner. In practice, however, it pushed labor collectives toward the adoption of understated plans with a view to minimizing the risk of their nonfulfillment.

The abolition of this procedure is quite justified. However, there are also other factors hindering initiative. During an evaluation of the economic activity of enterprises by central and regional bodies, first of all, the level of fulfillment of production plans, not really attained economic results, is taken into account. This leads to disregard for public interests. Under such conditions many production collectives were able, without a noticeable exertion, to fulfill and overfulfill the plans established by them independently, to add and pay higher wages to their workers, and to increase economic incentive funds unjustifiably.

The survey has shown that wholesale trade in the means of production at the Ukraine's enterprises does not play a noticeable role in material security for production and construction. The level of deliveries in wholesale trade at enterprises covered by the survey during the first 6 months of 1988 comprised only 0.7 percent, but of centralized deliveries, 91 percent. In the hope of guaranteeing deliveries of material resources for the production plan enterprises were forced to increase the state order, whose proportion in deliveries of material resources at enterprises surveyed in the Ukraine, which operated according to the first model, rose from 57.1 percent during the first 6 months of 1987 to 82.1 percent during the first 6 months of 1988 and at enterprises, which applied the second cost-accounting model, from 41.6 to 86.6 percent respectively.

This also limited the use of the rights of enterprises in the solution of planning problems by way of conclusion of contracts with production partners on the basis of direct economic ties, through which deliveries of material resources at the Ukraine's enterprises did not exceed 8 percent in 1987-1988.

The work of enterprises under new conditions has shown that the establishment of a socialist market in the means of production, essentially, has begun without a developed integrated theory of practical significance and without its thoroughly worked out model. There is no efficient mechanism of a harmonious interaction of the market in the means of production and direct economic ties with a centralized distribution of material resources, without which a socialist economy is impossible. The

situation becomes complicated by the shortage of material resources, which is intensifying everywhere, by the imbalance of payment resources with the mass of commodities, and by the complete confusion in price formation, over which, essentially, state control has been nullified.

The formation of 1988 plans for production and material-technical provision and their fulfillment during the first 6 months have shown that ministries and bodies of the USSR State Committee for Material and Technical Supply are poorly familiar with the production capabilities of enterprises and do not provide the necessary help in their optimal use. At the same time, owing to shortcomings in material-technical provision, the low discipline of deliveries, and shortage of many material resources, enterprise collectives were unable to overcome the lack of confidence in the reality of independently adopted stepped-up plans.

The 1988 initial profit plan adopted by enterprises surveyed in the Ukraine, which operated according to the first cost-accounting model, was 30.2 million rubles lower than the control figures of ministries and the plan corrected by the middle of the year, 159 million rubles lower. As a result, production profitability at these enterprises, according to the 1988 plan, decreased to 17.7 percent, as compared to 24.7 percent according to the control figures of ministries and as compared to 20 percent according to those actually attained in 1987 and 22.7 percent, during the first 6 months of 1988.

The surveyed enterprises, which used the second cost-accounting model, adopted an initial income plan, which was 24.6 million rubles higher than control figures and then reduced it by 29.8 million. As a result, by the middle of 1988 the income plan was 5.2 million rubles lower than the control figures of ministries. Production profitability at this group of enterprises was determined at the level of 34.8 percent by control figures. In the initial plan of enterprises and associations it was envisaged at the level of 38.4 percent and then was corrected to 35.6 percent. During the first 6 months of 1988 actual production profitability comprised 39.3 percent as compared to 36.8 percent in 1987.

A similar picture is also observed at the country's enterprises. The initial profit plan at enterprises operating under conditions of the first cost-accounting model was 9 percent lower than the control figure and at enterprises using the second model, 2 percent lower. Throughout the USSR industry (including enterprises not transferred to full cost accounting) in 1988 the profit plan originally adopted by enterprises was 2.5 billion rubles lower than the initial data. As a result, payments to the budget decreased by 1.2 billion rubles. In connection with this the amount of the fund for the development of production, science, and technology was reduced by 800 million rubles, of the social development fund, by 240 million rubles, and of the material incentive fund, by 270 million rubles. As of 1 October 1988 the sum of profit plans of the country's enterprises was 4.5 billion rubles lower

than control figures. At the same time, during 9 months of last year 3.9 billion rubles of above-plan profit were obtained, but even in this case by a group of ministries, whose enterprises operated under full cost-accounting conditions, the plan for payments to the budget was underfulfilled by 1.3 billion rubles, and more than one-half of these ministries underpaid 1.7 billion rubles to the budget.

Such an approach of enterprises to the determination of profit plans is formed under the effect of shortcomings inherent in the economic mechanism being introduced. The adoption of real profit plans is hindered by the excessively rigid system of economic sanctions for violating the terms of economic contracts. An increase in the cost-accounting income of enterprises during the adoption of a stepped-up plan does not correspond to economic losses, which are inevitable when certain contractual obligations are not fulfilled. As already stated, both the former procedure of a 15-percent increase in the material incentive fund in case of a complete fulfillment of contractual obligations and a 3-percent reduction in deductions into this fund per percent of their nonfulfillment did not prove worthwhile. On the one hand, this procedure prodded enterprises to raise monetary—essentially, inflationary—increments in commodity output by any means, including a rise in prices, and, on the other, hampered the adoption of stepped-up plans in their real, material-physical, filling. The right granted to enterprises to deduct 70 percent of the above-plan profit at their disposal has a significant effect on the formation of the profit plan. Therefore, many labor collectives try to adopt less stepped-up plans in order to ensure their unconditional fulfillment.

The total volume of capital investments (centralized and from the resources of enterprises) at enterprises surveyed in the Ukraine, which was adopted by ministries for 1988, totaled 291.4 million rubles as compared to 304.6 million rubles proposed by enterprises. The proposals of enterprises were reduced by 13.2 million rubles, or by 4.4 percent, by ministries. Ministries reduced the claims of enterprises for centralized state capital investments by 12.5 million rubles, or by 16.5 percent.

When forming their work plans, enterprises and associations transferred to full cost accounting and self-financing were unable to fully overcome existing planning and financing methods. The desire to receive from central bodies a state order for a full load of production capacities and, thereby, to ensure centralized deliveries of material resources and to receive more centralized state capital investments free of charge did not disappear. The initial desire of enterprises to establish real stepped-up production plans was later canceled by their lack of confidence in the provision of these high plans with material resources.

Restructuring processes are greatly affected by many unsolved problems in the economy: existence of a vast shortage of material resources, especially high-quality producer and consumer goods, with a surplus of money

in circulation; confusion in price formation; departure from the basic principle in labor remuneration—everyone according to the quantity and quality of expended labor.

#### Basic Results of Industry's Work in 1988

In 1988 a total of 52 percent of the workers employed in the sector worked at the Ukraine's industrial enterprises transferred to full cost accounting and self-financing, producing almost 58 percent of the industrial output. The annual increase in the production volume comprised 4.4 percent as compared to 2.5 percent in 1987. Throughout the industry the increase was ensured as in 1987—4 percent—but at enterprises not transferred to full cost accounting the increase in the production volume decreased to 3.1 percent as compared to 5.6 percent in 1987.

Rates of labor productivity growth increased throughout the republic's industry from 4.5 percent attained in 1987 to 5 percent and at enterprises operating under self-financing conditions, from 3.7 to 5.8 percent, but at enterprises not transferred to full cost accounting they were lowered from 5.7 to 4 percent. Throughout the Ukraine's industry the entire increase in production was obtained through labor productivity growth with a certain reduction in the number of workers.

It is appropriate to draw attention to the fact that in the industry of the country and of the Ukrainian SSR in 1988 the rates of increase in labor remuneration outstripped considerably the rates of increase in labor productivity and, especially, in production volumes, which is confirmed by the data in Table 1.

**Table 1**  
(in percent)

Indicators	Rates of increase in 1987			Ratio of rates of increase		
	of production volume	of labor productivity	of average monthly labor remuneration	of labor productivity to production volume	of average monthly labor remuneration to increase of production volume	of labor productivity
Throughout USSR industry	3.9	4.7	6.5	120.5	166.6	138.3
Throughout Ukrainian SSR industry	4.0	5.0	7.3	125.0	182.5	146.0
Including at enterprises:						
—operating under new conditions	4.4	5.8	8.5	131.8	193.1	144.6
—not transferred to full cost accounting and self-financing	3.1	4.0	5.9	130.0	190.0	147.5

At the country's industrial enterprises operating under self-financing conditions the outstripping by rates of increase in labor remuneration of the rates of increase in labor productivity and rates of increase in production volumes was higher than throughout the industry. According to the data of the USSR State Committee on Statistics, at enterprises of five ministries operating under conditions of the first cost-accounting form average monthly wages per worker on the industrial and production staff during the first 6 months of 1988 increased by 8.5 percent as compared to the first 6 months of 1987. At the same time, the rates of increase were as follows: in average wages during the period under review they exceeded the incremental indicator of the production volume by 3.5 points (5 percent) and were 3 points lower than in profit (11.5 percent). Labor remuneration funds increased by 10.1 percent, wage funds, by 3 percent, and material incentive funds, by 37 percent. Thus, in this group of enterprises the increase in the labor remuneration fund (together with payments from the material incentive fund) was twice as big as the increase in the production volume, including in the wage fund, 1.7-fold. Throughout the Ukrainian SSR industry in 1988 the rates of increase in average monthly payments from the material incentive fund outstripped the increase in average monthly wages 2.9-fold.

After the transfer as of 1 January 1989 of all industrial enterprises to full cost accounting and self-financing the outstripping of the rates of increase in labor remuneration as compared to labor productivity and production volumes increased even more: During the first quarter of 1989 the production volume in the USSR industry increased by 3.2 percent as compared to the first quarter of 1988, labor productivity, by 4.5 percent, and average monthly wages, by 9.4 percent. Thus, the rate of increase in labor remuneration (without payments from the material incentive fund) outstripped the rate of growth of the production volume 2.9-fold and labor productivity growth, more than twofold.

The increase in average monthly labor remuneration is largely connected with the amounts of profit left at the disposal of enterprises. An analysis of the use of the material incentive fund at the country's surveyed enterprises shows that during the first 6 months of 1988 payments from this fund for the current award of bonuses to workers were 25 percent bigger than a year ago. However, payments from this fund for covering the overexpenditure of the wage fund have increased even more significantly, that is, enterprise expenditures on labor remuneration exceed the real increase in the wage fund formed according to incremental normatives. The

cost-accounting model based on a normative distribution of income contributes to profit redistribution in favor of an increase in labor remuneration. In the group of surveyed enterprises, which applied it, specific expenditures of the labor remuneration fund (wages and additional sums from the material incentive fund) per ruble of output during the first 6 months of 1988 rose to 20.9 kopecks as compared to 12.4 kopecks during the first half of 1987, or 1.7-fold.

A repeated outstripping of the growth of the labor remuneration fund as compared to the growth of the final production result indicates that the funds of enterprises for labor remuneration exceed the resources really created by them for this and do not stimulate an increase in labor productivity and growth of the production of material wealth. The existing procedure of forming the wage fund with the use of incremental wage normatives negatively affects the efficiency of the new system. This method stimulates only a reduction in the number of workers, but not production growth, resource saving, and the attainment of high final results. A reduction in the size of personnel often leads to a deterioration in the regime of use of fixed capital and production capacities.

Furthermore, an outstripping growth of the labor remuneration fund leads to putting into circulation funds greatly exceeding the mass of commodities. Let us examine only the consumer goods market. In 1988 the volume of production of consumer goods increased by 5.1 percent as compared to 1987 and the wage fund throughout the national economy, by 6 percent, or with an excess of 18 percent in the relative rate of increase in the production of consumer goods. Nominal average monthly wages of workers and employees in the country's national economy rose 7 percent annually and the average monthly labor remuneration of kolkhoz members (in the public economy of kolkhozes), by 5 percent; real per-capita income, by 3.5 percent. This means that out of 14 rubles of increase in nominal average monthly wages the real increase in income totaled only 7 rubles

and in the labor remuneration of kolkhoz members only 4 out of 8 rubles of the nominal increase made up the real increase. Inflation "ate up" the remaining 50 percent of increase in nominal labor remuneration.

Money devaluation increased even more during the first quarter of 1989. As compared to the first quarter of 1988, the retail trade turnover rose 8.9 percent, while the production of consumer goods increased by only 5.8 percent, which comprised merely 68 percent of the increase in the trade turnover. As a result, with a nominal increase of 20 rubles, or 9.3 percent, in the average monthly wages of workers and employees, as compared to the first quarter of 1988, the increase in real labor remuneration totaled only 7.4 rubles, and among kolkhoz members, 7 and 2.3 rubles respectively.<sup>4</sup> Thus, during the first quarter of 1989 inflation absorbed 63 percent of the increase in workers' nominal income.

The growth of labor remuneration, which outstrips the growth of the final results of enterprise work to a considerable extent, is inherent in both cost-accounting models. They—practice has fully confirmed this—do not stimulate a rise in labor productivity and an increase in the production of material wealth and do not ensure growth of workers' real income adequately nominal to payments for labor in public production.

High rates of increase in wages and in additional sums from the material incentive fund ensure the entry into circulation of a big amount of money not backed by a corresponding increase in the mass of commodities, owing to which the consumer market is deformed. An increase in the nominal amount of wages does not at all mean that every worker receives a tangible addition to his income for work in public production.

The absolute increases in labor remuneration and the share of payments from the material incentive fund in it throughout the Ukrainian SSR industry are presented in table 2.

Table 2

	Increase in labor remuneration in 1988 as compared to 1987		Proportion of average monthly payments from the material incentive fund, percent	
	in rubles	in percent	1987	1988
Average monthly labor remuneration (wages and bonuses) per worker			in average monthly labor remuneration	
Throughout industry	15.8	7.3	8.7	9.5
Including at enterprises:				
—operating under new conditions	17.7	8.5	9.4	10.3
—not transferred to full cost accounting	13.4	5.9	7.8	8.7
Average monthly wages per worker			in average monthly wages	
Throughout industry	12.3	6.2	9.5	10.6
Including at enterprises:				
—operating under new conditions	14.0	7.4	10.4	11.4
—not transferred to full cost accounting	10.3	4.9	8.5	9.5

Table 2 (Continued)

	Increase in labor remuneration in 1988 as compared to 1987		Proportion of average monthly payments from the material incentive fund, percent	
	in rubles	in percent	1987	1988
Average monthly payments from the material incentive fund per worker				
Throughout industry	3.3	17.8	-	-
Including at enterprises:				
—operating under new conditions	3.6	18.3	-	-
—not transferred to full cost accounting	3.1	17.3	-	-

The data cited indicate that behind the high rates of increase in labor remuneration (outstripping the rates of production growth manyfold), especially in payments from the material incentive fund, in fact, there are negligible absolute increases in it. If they are corrected for the inflation coefficient, the real increase in workers' income will be 50 to 60 percent lower.

Leveling has not been overcome in labor remuneration and highly skilled effective labor is stimulated poorly. The widespread brigade method of labor organization and remuneration in its present form is an ideal means for leveling, for hiding the inefficient work of lackadaisical and slipshod workers, as well as absentees, behind brigade results, and for suppressing the initiative of organized and disciplined workers, who have a creative attitude toward their labor. Leveling is one of the basic reasons for the mass departure of active and enterprising workers from state enterprises into cooperatives.

Efficient labor is weakly stimulated in industry. Increments for workers for high occupational skills and for employees for high achievements in labor and performance of especially important jobs were not applied at all at 14 out of the 69 surveyed enterprises and associations in the Ukraine during the first 6 months of 1988. Furthermore, increments for workers were not established at 8 enterprises and for managers, specialists, and employees, at 11. At 38 out of 47 enterprises, where increments for workers were established, their average amount was below 10 percent of the average monthly wages. Higher wage increments were established for employees. At 8 enterprises maximum increments for employees exceeded 70 rubles per month and at the Cherkassy Rotor Scientific Production Association, 150; for workers, 53 rubles. Negligible increments poorly stimulate workers' initiative during the performance of additional, complex, and especially important jobs and an improvement in occupational skills by workers.

Nor do new statutes on the award of bonuses aim at significantly improving the stimulation of efficient labor. Therefore, according to the data of the USSR State Committee on Statistics, at 70 percent of the country's surveyed enterprises the organization of the award of bonuses to workers during the transition to full cost accounting and self-financing has not changed at all.

Thus, the intensive search for a mechanism, which makes it possible to harmoniously solve the problem of the forms

of implementing the basic principle of socialism "from everyone according to his abilities to everyone according to the quantity and quality of expended labor," a search begun one-quarter of a century ago, has not been realized to this day. Meanwhile, if a fair distribution according to labor is not attained and if highly skilled efficient labor is not remunerated, hardly anything will come of the economic forms and methods developed and introduced throughout a quarter of a century. It must be admitted that without this there will be no radical economic reform. Labor should bring real, not nominal, material well-being, to every citizen of our society.

#### Production Efficiency and Profit

Throughout the Ukraine's industry in 1988 profit increased by 9.5 percent as compared to 1987; at enterprises operating under new conditions, by 14.9 percent and at those that were not transferred to full cost accounting, by 1.7 percent. Throughout the industry in 1988 production profitability increased to 14.8 percent as compared to 13.9 percent in 1987.

A comparison of the rates of increase in profit and in production volumes has shown that the former are much higher both throughout the industry of the country and the Ukrainian SSR and at enterprises transferred to full cost accounting (table 3).

The high rates of increase in profit obtained with a negligible reduction in specific expenditures on production and even their rise at enterprises not transferred to full cost accounting, as well as with relatively low rates of increase in production volumes, indicate that the increase in profit was largely ensured by a rise in the prices of sold products, by structural shifts in favor of highly profitable articles, and so forth. According to calculations, in the republic's industry in 1988 approximately one-half of the increase in profit was attained through a rise in prices. Thus, even under new conditions of management it was not possible to see to it that scientific and technical progress, improvement in the quality of output, and resource saving become the basic factors in economic growth.

The cost-accounting methods being introduced (according to both models) do not make it possible to overcome

Table 3

Indicators	Rates, in percent of 1987			Ratio of rates of increase in profit to rates of increase in production, percent
	increase in production volume	reduction in expenditures on production	increase in profit	
Throughout USSR industry	3.9	-0.8	9.6*	246
Throughout UkSSR industry	4.0	-0.7	9.5	237
Including at enterprises:				
—operating under new conditions	4.4	-1.3	14.9	366
—not transferred to full cost accounting	3.1	+0.1	1.7	55

\*For January-November 1988.

a systematic rise in prices. On the contrary, the desire to obtain a large mass of profit and to leave most of it at one's disposal inevitably prompts enterprises and associations to raise prices groundlessly. This tendency intensified with the appearance of new forms of cooperatives with their uncontrolled price formation, which was manifested in the accelerated rates at which money entered circulation without an adequate increase in the production and deliveries of goods for circulation.

At the republic's enterprises, which applied the first cost-accounting model, during the first 6 months of 1988 profit from the sale of products totaled 377.8 million rubles—1.7 percent more than during the first 6 months of 1987. After the payment of the charge for productive capital and labor resources, as well as the charge for bank credit, to the budget the calculated profit remained in the amount of 285.1 million rubles, which was 28.4 percent more as compared to the first 6 months of 1987. A total of 136.9 million rubles, 2.6 percent less than during the first 6 months of 1987, were paid to the budget. A total of 50.7 million rubles, or 37.4 percent more, were transferred to the centralized fund of ministries. A total of 89.2 million rubles—43.1 percent more—remained at the disposal of enterprises.

A tendency toward an outstripping of the rates of increase in deductions into the centralized fund of ministries (37.4 percent) and in profit remaining at the disposal of enterprises (43.1) appeared in profit distribution. At the same time, there was a reduction of 8.6 percent in deductions into the budget (of the charge for productive capital and for labor resources and of deductions according to normatives). The same tendency in profit distribution is also visible at surveyed enterprises throughout the country: During the first 6 months of 1988 deductions into the budget were lowered to 53 percent as compared to 58 percent during the first 6 months of 1987. Deductions for ministries increased from 7 to 9 percent and the profit remaining at the disposal of enterprises, from 19 to 24 percent.

The tendency toward the redistribution of gross income was also determined in favor of enterprises: Deductions into the budget at the Ukraine's surveyed enterprises,

which applied normative income distribution, were lowered from 20 percent during the first 6 months of 1987 to 13.1 percent during the first 6 months of 1988 and deductions for ministries, from 14 to 12 percent, whereas the cost-accounting income of enterprises rose from 61.3 to 70.9 percent. At the country's enterprises deductions into the budget were also lowered (from 44 to 41 percent) and the cost-accounting income of enterprises rose from 41 to 45 percent of the total volume of gross income.

The increase in the share of profit and income remaining at the disposal of collectives is connected with the fact that enterprises have been entrusted with a simple reproduction of fixed capital and with the financing of measures for the social development of collectives. At the same time, an investigation has shown that in the methods and ways of deriving and distributing profit and gross income there is an intensified desire on the part of collectives to meet, first of all, their own narrow group and personal interests in detriment to social and state interests, as well as at the expense of the interests of other production collectives and the population.

At the Ukraine's industrial enterprises in 1988 funds for the development of production, science, and technology and social development funds were formed in the amount of 10.8 billion rubles, which was 1.7-fold more than in 1987, including at enterprises transferred to full cost accounting, 6.8 billion rubles, or 3.9-fold more. At enterprises not transferred to full cost accounting the volume of these funds decreased by 12.9 percent, totaling 4 billion rubles.

At the republic's enterprises operating under new conditions in 1988 the volume of capital investments from their own funds totaled 4,134 million rubles—7.8-fold more than in 1987. This makes up 60.8 percent of the volume of formed funds for the development of production, science, and technology and social development funds. In 1987 the volume of indicated funds in this group of enterprises was expressed in the amount of 1,755 million rubles and of capital investments from internal resources, only in the amount of 531 million rubles—36 percent of the added funds. At enterprises

not transferred to full cost accounting capital investments from internal resources totaled 3,473 million rubles—23 percent less as compared to 1987 and 6.7 percent less than the added funds in 1988. Throughout the republic's industry in 1988 the volume of capital investments from the internal resources of enterprises was 2.9 billion rubles, that is, 27 percent, lower than the formed funds for the development of production, science, and technology and social development funds, and with due regard for their remainder carried over from 1987, 3.9 billion lower. Thus, in 1988 the Ukraine's industrial enterprises used only 64 percent of the resources of these two funds at their disposal.

At the country's industrial enterprises operating under new conditions on 1 October 1988 remainders of economic incentive funds totaled 11.5 billion rubles<sup>5</sup> and at enterprises not transferred to full cost accounting, approximately 20 billion.

The existence of unused resources of economic incentive funds carried over from year to year is a legitimate phenomenon. The danger lies in an avalanche-like increase in these remainders and in the reasons for their occurrence. In 1988 the added funds for the development of production, science, and technology and social development funds in the Ukraine's industry increased 1.7-fold as compared to the additional sums in 1987 and their unused remainders, from 976 million rubles at the beginning of 1988 to 3,911 million rubles at the beginning of 1989, or fourfold.

The basic reasons contributing to the settling of unrealized resources of funds for the economic and social development of enterprises in bank accounts lie in the lack of the necessary improved equipment for retooling and reconstruction and the production of building materials for the construction of projects for nonproduction purposes. The capacities of the construction industry have been limited. The economic method of construction is poorly developed. For the same reasons the possibilities of local soviets to accept from enterprises orders for the construction of projects for social purposes are limited.

At the same time, an analysis of survey materials has shown that enterprises do not transfer their own resources for the construction of housing and other projects for social purposes to local soviets, because executive committees demand the participation of enterprises in the financing of the construction of municipal service projects, city engineering networks, and nature protection facilities.

It was not possible to significantly improve the state of affairs in housing construction, despite the fact that with the resources of the social development fund the construction of housing, children's preschool institutions, and other projects of the nonproduction sphere increased considerably. In 1988 the Ukraine's enterprises, having spent their own resources, built dwelling houses of a total area of 4.15 million square meters—

4.8-fold more than during the previous year. At enterprises transferred to full cost accounting housing construction increased 7.2-fold annually. It would seem that the results are not bad. However, this is from the point of view of an individual enterprise. On the whole, however, shifts for the better have not occurred. The point is that in 1989 the Ukraine's enterprises built 7.32 million square meters—31 percent less than in 1987—with state centralized capital investments. In all, a total area of 11.47 million square meters was built in the republic (11.47 million, in 1987).

Thus, only a redistribution of the sources of financing housing construction occurred, which, in the final analysis, did not at all speed up the solution of this problem.

It should be noted that a redistribution of monetary resources by means of economic normatives of profit and income distribution in favor of enterprises limits the possibilities for an accelerated solution of social problems in localities through the allocation of centralized state capital investments. This contradicts the interests of workers in the nonproduction sphere and the task of developing public consumption funds. Furthermore, such a redistribution of financial resources intensifies contradictions between the interests of collectives of production enterprises and regions of their dislocation.

Along with this there is another powerful economic factor, which hampers the solution of production and social problems: A big mass of money not secured with an adequate mass of commodities is put into circulation. As a result, in particular, in 1988 housing construction at the Ukraine's industrial enterprises was carried out only in volumes secured with material resources and capacities of the construction industry. The growth of unused resources of economic incentive funds along with other factors points to an increase in the mass of funds in circulation and intensification of the shortage of goods for production purposes, which accelerates inflationary processes in the sphere of commodity circulation of implements and subjects of labor.

Thus, the economic mechanism being introduced has not ensured a breakthrough in scientific and technical progress, has not eliminated the orientations of economic growth toward particularly quantitative indicators, and has not raised the role of qualitative factors in economic and social development to the proper height. In the national economy economic disproportions have intensified, financial instability and inflation have grown, and conditions on the producer and consumer goods market have deteriorated. The economic reform as a whole is carried out slowly, half-heartedly, and inconsistently. The transition to full cost accounting and self-financing is hindered by the unwillingness and inability of central management bodies to change planning and management methods. The search for solutions of economic and social problems at the macrolevel is virtually absent.

An analysis of the industry's work in 1988 and during the first quarter of 1989 has illuminated with special clarity the contradictory nature of many processes in its development, which has led to social tension in society.

Social tension can be removed to a significant extent by fundamentally restructuring the labor remuneration system, developing effective methods of material incentives for high-quality labor, taking immediate steps against an artificial inflation of effective demand, that is, to introduce order in price formation and labor remuneration, and significantly reducing investments by lowering centralized state capital investments, which will greatly contribute to a balance of the economy and a reduction in the budget deficit. The competence of managerial personnel, workers' skills, and the standard of labor, production, and management should be raised fundamentally. Some of these measures can be realized during the shortest period without expenditures, attaining a significant economic effect, while others, in particular personnel training, will require time.

Footnotes

1. See: PRAVDA, 22 Jan 1989.
2. See: Kalmykov, Yu. and Yun, O. "Economic Reform Is the Foundation for Restructuring," *EKONOMICHESKAYA GAZETA* No 32, 1988.
3. See: Voronin, L., "Development of Wholesale Trade," *PLANOVOYE KHOZYAYSTVO* No 3, 1989.
4. Calculated according to the data of reports by the USSR State Committee on Statistics on the results of development of the country's national economy for 1988 (PRAVDA, 22 January 1989) and for the first quarter of 1989. (PRAVDA, 23 April 1989).
5. See: Figurnov, E., "Goods—Prices—Inflation," *EKONOMICHESKAYA GAZETA* No 5, 1989.

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## REGIONAL DEVELOPMENT

**Promised, Actual RSFSR Agricultural Development Contrasted***904B0017A Moscow PRAVDA in Russian  
1 Sep 89 Second Edition p 2*

[Article by G. Kulik, honored economist of the RSFSR: "A Peasant—Not a Dependent"]

[Text] At first glance, the question appears to be a rhetorical one: do the rural areas need money? Who needs it at the present time? Especially notable is the fact that the rural areas are inferior to the cities in many respects. However, voices ring out from time to time: the chief concern today is the need for changing the forms of ownership and returning the peasant farms. And it is maintained that it is senseless to invest more resources in the kolkhozes and sovkhozes.

Certainly, improvements are needed in the economic mechanism. And it is hardly appropriate to accuse the rural dwellers of stagnant thought. Indeed it was here, in the rural areas, that enterprises with complete cost accounting and self-financing first appeared. Leases and family contracts also were born in the countryside. Certainly, we are far from perfection in these areas. And much remains to be done if the new economic mechanism is to operate in an effective manner.

Those who wish to leave the countryside with resources have a "trump card": with each passing year, the branch's output-capital ratio is declining. It is being said that the situation resembles a bottomless barrel: regardless of how much is poured in, the barrel remains empty. Over the past 14 years, the return from every 100 rubles worth of fixed capital at kolkhozes and sovkhozes in the Russian Federation has decreased from 87 to 46 rubles.

Let us examine the trends in the world economy. The output-capital ratio is declining in practically all areas. This regular process is associated with production intensification. Here there is another important aspect: how are expenditures of live labor to be managed under these conditions? They must be reduced. In the RSFSR, productivity in the rural areas increased during this period by a factor of 1.6. And if this had not happened, 5.3 million additional workers would have been needed in order to achieve the present production volume. During 1 year alone, 12.7 billion rubles would have been expended for their wages. Here then we see the effect realized from an increase in the capital-labor ratio.

Let us examine this vital problem using the Russian countryside as an example. Here many questions are especially aggravated. Over the past two five-year plans, 252.3 billion rubles have been allocated for developing the republic's agroprom [agro-industrial program]. This is an impressive figure. But what is the essence of the problem? Has the state allocated more or less funds for developing the food program compared to the overall level of investments in the national economy? For

example, in 1975 the proportion of investments in the APK [agro-industrial complex] compared to the overall state capital expenditures in the republic amounted to 22.7 percent and during the current five-year plan—only 21.3 percent.

Let us take the social sphere. It has lagged behind considerably and engineering support in the countryside is also lacking. For example, the availability of water lines here is lower by a factor of 2.1 than in cities, sewerage—by a factor of 2.7, baths—2.9 and hot water supply—by a factor of 4.7. The supplying of natural gas for the countryside is only at the 3 percent level and centralized systems for supplying it—at the 2 percent level.

Taking all of these facts into consideration, we began changing our investment policy and increasing the funds being made available for developing the social sphere. During the last 5-year plan, 39 percent of the overall volume of construction work was employed in this area and during the present 5-year period even more—52 percent.

Up until recently, no attempts had been made in the social sphere aimed at bringing city and rural dwellers closer together. The situation is changing somewhat at the present time. However, in a majority of regions, especially in those areas where there are manpower shortages, the number of homes being built in rural areas is still lower than those being built on asphalt. If this proportion is not changed, we will be unable to correct many of our rural problems.

The specialists assume that 150 billion rubles will be needed for improving the social sphere for the Russian rural areas. Yet only 66 billion rubles are being planned for the 13th Five-Year Plan. It should be borne in mind that the kolkhozes and sovkhozes are using their own money to build hospitals, schools, kindergartens and roads. Yet many city plants and offices often solve these problems at the expense of state investments.

There is also another point of view: money is being allocated for social and cultural purposes in the rural areas and yet it is deemed useless to invest resources in production. Meanwhile, the capital-labor ratio for our rural workers remains low. In 1980, it amounted to 11,000 rubles for the Russian Federation, 5 years later—16,000 and last year—21,000 rubles. At the same time, the capital-labor ratio for an American farmer is 64,000 dollars. Roughly the same situation prevails in the case of the power-worker ratio: here the difference is three-fold.

Some journalists have instilled in the people the opinion that investments in the rural areas have been concentrated in livestock husbandry complexes and that billions of rubles have been made available for land reclamation. And none of this produces a return. Truly, some large-scale farms are operating in an inefficient manner. But on the whole? Let us take poultry raising. Roughly 6.2 billion rubles were expended in Russia for the

construction of poultry factories. The operational indicators for these enterprises are considerably higher than those for non-specialized farms. They spend 1.8 feed units for every 1,000 eggs. This is almost two times less than the figure for kolkhozes and sovkhozes. The consumption of forage for the production of a quintal of poultry meat is also lower.

And what is the situation at other complexes? For example, swine husbandry operations. There are approximately 300 of them in the republic and they furnish more than 1 million tons of meat—one third of the overall production of pork. The 3 billion rubles spend for construction were repaid within 5-6 years.

True, recently the erection of large-scale livestock husbandry installations has slowed down considerably. During 3 years of the current five-year plan, only 17 poultry factories and 8 swine husbandry complexes were placed in operation. I believe that a serious mistake is taking place.

But another discussion is taking place at the present time. It should be borne in mind that all other forms for production organization—family farms and peasant farms—require high capital-labor ratios. It would be naive to think that Soviet farmers would agree to live under conditions considered to be worse than those of kolkhoz members and sovkhoz workers at the present time. Specialists have already estimated that the construction of a small farm for 25 cows, with all of the necessary buildings, will cost 270,000 rubles. In all probability, the plans can be lowered in cost. And where feasible, use can be made of the resources of the peasant involved. It is my opinion that such farms will be built. But it seems to me that this method, even if it becomes a principal one, will not produce a high return on the resources invested.

There are large-scale problems upon which the life of entire regions is dependent. Let us take roads, especially those in the non-chernozem zone. Considerable funds are needed here. One kilometer of road costs 200,000-250,000 rubles. During the present five-year plan, it is expected that 37,000 kilometers of rural arteries will be built here and during the next five-year plan—almost 100,000 kilometers.

Certainly, funds should not be expended thoughtlessly in order to please expenditure economics. Many factors must be examined. It makes no sense and in fact it is even ruinous to produce milk, meat and vegetables and thereafter show no concern for their complete preservation or efficient processing. Meanwhile, up until now the losses in products have been tremendous—up to 30 percent. Many food enterprises are operating at the limit of their potential. Almost one half of the creameries and combines in the RSFSR have been in operation for more than 25 years.

Quite often the press publishes impressive figures on investments in these branches. In the Russian Federation, 26.3 billion rubles have been allocated for the current and 13th five-year plans. Yes, such a decision has

been handed down. But nobody has furnished any real funds. The plan for capital investments in the "food industry" is not being supported by financial resources.

What can the Russian rural areas expect in future years? The capital investment volumes during the next five-year plan will increase by 16 percent. At first glance, this appears to be good. Indeed, we have in mind 154 billion rubles. But how will this flow of new funds be accepted by the kolkhozes and sovkhozes—the principal producers of products? For developing the social sphere, one and a half times more money will be required than has been the case in the past. Road construction and the processing industry will consume more than 36 billion rubles worth of the overall amount. Agriculture will employ for its own base just slightly more than 50 billion rubles—or 58 percent of the level of investments for the present five-year plan.

Such is the situation. Can it be that those who advocate a reduction in investments for the rural areas hide certain secrets which other economists are not familiar with? It would be extremely interesting to learn how they expect to accelerate agricultural development, to feed people in the immediate future, to solve the social problems or to strengthen the processing branches, based upon the funds planned for the new five-year plan.

And finally, the last point to be made. It turns out that the Russian peasant has become a debtor to the state. The mistakes of past years, when economic relationships developed in one direction—the semaphore was open in the direction "rural areas—cities," have become a heavy burden. Of and by itself, this is an unnatural process. The countryside cannot be a dependent of the state. Today agriculture and the processing industry, in the form of payments from profits and turnover tax, are adding 26.4 billion rubles to the "treasury" and obtaining only 13 billion from the budget. Thus, our Russian peasants do not walk among the dependents.

## MACHINERY, EQUIPMENT

### Excessively Heavy Tractors Damage Farmland

#### Solution to Problem Needed

18240252 Moscow SELSKAYA ZHIZN in Russian 10  
Nov 88 p 2

[Article by D. Shumskiy: "The Field Groans With Pain, When Heavy Equipment Presses Down Upon It"]

[Text] It is true that the soil is almost like a living thing. It responds to good care with an abundant harvest. It bears well, as the people say. This is especially true of the land that is well cared for and properly cultivated.

But here is the problem—modern technology, heavy and powerful, is wounding the land and packing it down excessively. After numerous trips by the Kirovets, the Don or the KamAZ, no matter how much one fertilizes

the land a taut ear of grain will not develop. According to the calculations of specialists, due to excessive compaction of the soil the country underproduces 15 million tons of grain yearly. A million tons of fuel is burned each year in vain.

And which way are the scientists-agronomists looking? In 1974 VASKhNIL [All-Union Agricultural Academy imeni V. I. Lenin] assigned a number of leading institutes to carry out special research. Five years later, the first results of this work were discussed at a meeting of the academy's departments of agriculture and mechanization. The need to develop temporary recommendations has become clear, and later—a GOST [All-Union State Standard] must be established in the interest of protecting the soil. The Soil Institute imeni V. V. Dokuchayev, the All-Union Scientific Research Institute for the Mechanization of Agriculture (VIM) and specialists of other scientific organizations have carried out extensive research on the system of "propulsive device - soil - harvest."

What conclusions have they drawn? It is possible to help the land. Scientists became convinced that it is better to avoid compaction of the soil, like disease, because it is much more difficult and more expensive to treat the disease. The simplest and most effective way to partially solve the problem is to double the wheels with a simultaneous decrease in tire pressure, a technique that is extensively used in foreign countries, and also to use caterpillar machinery. Foreign farmers, having "shoed" their equipment in special soft low-pressure tires, achieve good results.

VIM has tested the T-150K tractor with rigid single, double rigid and soft tires. The tests showed that the latter not only decreased soil compaction but also significantly increased the grapple power.

What is the situation involving the production of soft tires? Minneftekhimprom [Ministry of the Petroleum and Chemical Industry] is already developing them, but Minselkhoz mash [Ministry of Agricultural Machine Building] has not yet submitted any orders.

Last year GOST 26955-86, "Standards for the Action of Propulsive Devices on the Soil," was introduced. It limits not only the pressure on the soil but also the load per single propulsive device, which also protects the layer underneath the plowing layer from excessive packing.

In connection with the confirmation of GOST, the USSR State Committee on Standards [Gosstandart] held a seminar. Invited to it were specialists of scientific organizations of USSR Gosagroprom [State Agro-Industrial Committee], Minselkhoz mash, and other departments. Unfortunately, Minselkhoz mash did not demonstrate any interest in this event—not a single person of those invited came to the meeting. The department was saved by just one person—M. Lyasko, senior scientific worker of the NATI [State All-Union Scientific

Research Institute of Tractors] NPO [Scientific Production Association], who decided to come on his own initiative. His reason for coming was to criticize the new GOST.

As soon as GOST was legalized, all kinds of controversy began. Workers of Minselkhoz mash began to try to convince their directors that GOST could bring the ministry nothing short of catastrophe.

The KHTZ [Kharkov Tractor Plant] production association has been dreaming for a long time about halting production of caterpillar tractors, leaving only wheel tractors with double rigid tires. What is the opinion of farmers? This question can be answered convincingly by an experiment carried out by Kolkhoz imeni Kalinin of Moscow Oblast. During spring work here, heavy wheel tractors were replaced by caterpillar tractors and the increase in yield equalled 7 quintals per hectare.

The departmental "kinfolk" from the design buro, which were given the assignment of developing the technology for introducing manure into the soil, officially joined the "work." Naturally this is being done according to the demands of the new standards.

"How can we develop new technology when GOST is in our way?" they complained in a letter to the Machine-Building Buro of the USSR Council of Ministers.

The reaction to the complaint was immediate and concerned, if we do not consider the "trifles"—they forgot to notify USSR Gosagroprom, which has the most direct relationship to the problem. The assignment was given to the USSR State Committee on Standards—you made the mess, now you deal with it...

Who holds the fate of GOST, the protector of the soil, in their hands now? Deputy Chairman A. S. Navolotskiy, who prepared it for confirmation? No, First Deputy Chairman B. N. Sokolov. Incidentally, he once proclaimed, "I am far from the soil; I am closer to the air." Within the commission of experts created by him with the intention to "torpedo" GOST, there are also more proponents of industry than of agriculture.

While understanding that it will not be a simple matter to deal with GOST, the technical administration of Minselkhoz mash has decided to get support from below. Within SKB [Special construction bureau] recently, letters were sent out with approximately the following questions: Do you feel it necessary to introduce GOST according to these standards, and if not, what should be changed?

The goal—either to emasculate GOST or to postpone the time for its introduction until the next generation of machines—is completely clear.

No, the decisions are at cross-currents to the interests of the government and should not pass!

### Follow-Up on GOST Implementation

18240252 Moscow SELSKAYA ZHIZN in Russian 17  
Feb 89 p 2

[Article by A. Bondarev, director of the department of soil physics and mechanics of the Soil Institute imeni V. V. Dokuchayev, doctor of agricultural sciences; V. Medvedev, deputy director of the Ukrainian Institute of Soil Science and Agrochemistry imeni A. N. Sokolovskiy, doctor of biological sciences; V. Rusanov, laboratory director of the All-Union Institute of Mechanization of Agriculture, candidate of technical sciences: "On the Sly under Departmental Jurisdiction"]

[Text] In November of last year the newspaper published an article entitled, "The Field Groans With Pain." It criticized machine builders because they manufacture equipment that compacts the soil excessively. Let us continue the discussion we began.

Since the beginning of last year, new GOST standards have been introduced on the action of agricultural machinery on the soil and on methods to determine this. How did many industrial directors greet these GOST standards? In the way that has always been true when ecological standards are concerned—they try not to notice them and at the same time to achieve a repeal or a radical change in them. Demands have been made to create a working group made up of representatives of various ministries and departments in order to develop new GOST standards that are advantageous for machine builders.

We can recall that approximately the same thing happened with the Baykal and with Yasnaya Polyana. In all cases, attempts were made to prove that there was nothing dangerous in the actions being taken, and scientists were found who could "authoritatively" support this. The former USSR Minselkhoz mash also basically depended on the conclusions of some specialists—engineers, and not of soil scientists. On the basis of the single experiment carried out in the Odessa affiliate of NATI, scientists even presented a unique indicator that was directly related to changes in the characteristics of the soil and the harvest. Without looking into the scientific foundation for this indicator, let us simply note that when it was used to make calculations it demonstrated that the use of double pneumatic tires on a tractor increased soil compaction. But if pressure was decreased by means of installing double-width tires, they said, soil compaction would not change. This contradicts the results not only of theoretical and experimental research in our country but also practices abroad, where double and triple tires are used.

The aforementioned indicator has for more than 3 years been a dependable "scientific foundation" for all objections related to the norms for the action of propulsive devices on the soil, which first were signed by the developer of the indicator, then by the deputy minister and even by the minister himself. From these conclusions it follows that all soil scientists, farmers and

engineers-machine operators have made a serious error in establishing norms for tolerated action of propulsive devices on the soil, in connection with which these standards are unsuitable for Minselkhoz mash.

Now for a short historical excursion into the problem. In 1964, the first "hero of the fields," the K-700 tractor, came off the conveyor of the Kirov plant; its soil pressure was higher by a factor of 2.5 than that of the heaviest then-contemporary caterpillar tractors. The creator of this "technical revolution" was N. S. Khrushchev, who saw in the U.S. that the well-known corn farmer Garst used only wheeled tractors on his fields. It is true that the weight of those tractors did not exceed 6 tons. But at the time when the goal that was established in our country was to catch up with and beat America in the main indicators, such "trifles" could not be considered. B. P. Kashuba, then the general designer at KhTZ who knew that under field conditions the caterpillar tractor is more effective, began to object to N. S. Khrushchev, and received the answer, "A caterpillar has travelled across your head."

What about the peasant and the soil? The peasant proclaimed that the soil was poor. In 1972, the question of the effect of propulsive devices on it was examined by VASKhNIL. The Soil Institute imeni V. V. Dokuchayev, VIM and TSKhA were asked to conduct an experiment and to assess the problem. Seven years later they reported that on all soil where the experiment was conducted there was a decrease in the harvest of grains and other crops. The greatest drop occurred during trips on moist soil by the K-700 and T-150K model tractors, and the smallest—by the DT-75M and MTZ tractors. It was established that in the tracks of the caterpillar tractors and the MTZ, resistance to plowing increased by 12-25 percent, and of the T-150K and K-701—by 45-60 percent. It has also been discovered that after the movement of heavy wheeled tractors packing extends to a depth of up to 70 centimeters, that after this the soil does not fully reestablish its properties for several years. Then studies began, according to the results of which norms were developed on the tolerated effect of propulsive devices on the soil, and drafts for the corresponding GOST standards were developed. Fourteen institutes were included in the work. Parallel work was being done along CEMA lines.

What does the introduction of the new standards show? Let us look only at the data of 16 industrial tests. In comparison with the variant in which a tractor within the soil-tolerance range was used, the decrease in yield due to the use of the T-150K and K-700 tractors increased to 25 percent. Moreover, this was true for all crops, including cultivated crops.

Calculations convince us that the modernization of propulsive devices, and this requires a new standard, is economically justified if the yield of grains increases just by 0.3-0.5 quintals per hectare. The values obtained for underproduction are tenfold higher according to test results. Isn't this the reason that broad wheels have been

put on tractors for a long time now with tires that are significantly wider than ours? The pressure on the soil of the Canadian MF-4900 tractor weighing 13 tons is less by a factor of 3-4 than that of the K-701, on which the installation of double tires has not been foreseen. In Sweden, a tractor has been manufactured that has a capacity greater than that of the K-701 but with a soil pressure less than the latter's by a factor of 3. Unfortunately, our designers still think and act in the old manner. The USSR produces the heaviest grain harvester in the world, the Don-1500, the pressure on the front wheel of which reaches 7.5 tons when the hopper is full. This results in the fact that in the soil and in the layers under the plowing layer there is permanent compacting that cannot be eliminated even with the aid of chisels.

The directors of machine-building departments do not want to take any of the conclusions of soil farmers into consideration. Various letters have been and continue to be sent to the USSR Council of Ministers and USSR Gosstandart, meetings are held and commissions and work groups are named. Without getting into the details of this bureaucratic maze, let us simply note that, strangely enough, the leading scientific-production association for tractor machine-building—NPO NATI—is opposed to the standard. Moreover, attacks against GOST have become more acute since last year, once state reception began operations and the production plan began not to be fulfilled. In connection with this the machine-building bureau of the USSR SM [Council of Ministers] has received a proposal to eliminate part of the GOST standards and to lower some of the other standards. The hope is that "on the sly" the GOST soil standards will either be done away with or be postponed for about 5 years. The fact that the given documents have been disseminated since 1 January 1987 for newly developing technology, and for all technology only beginning in 1996—these are just details, they say, which do not have to be given special consideration.

To a large extent these hopes have come to pass. The bureau on machine building of the USSR Council of Ministers, taking into account the letter of N. M. Gartsman, director of the state design buro (city of Bobruysk), and the proposal of the NPO NATI, without asking the opinion of consumers, assigned USSR Gosstandart and specifically B. N. Sokolov to create a work group consisting of specialists of interested branches for an expert assessment of GOST standards in case these must be reworked during the current year. Of seven highly trained experts having a professional attitude toward the assessment of the system of propulsive device - soil - plant, six came to the conclusion that GOST should be introduced in the existing form. Despite this, the chairman of the work group, B. N. Sokolov, together with NPO NATI, is composing recommendations which are being signed by B. A. Goberman, department director of VNIINMash [All-union scientific research institute for standardization in machine building], and by Yu. V. Butuzov, secretary of the work group, who is a worker in V. A. Goberman's department. Of course the proposals include a suggestion that USSR

Gosagroprom, together with Minselkhoz mash, make changes in GOST according to the standards for effect on the soil developed by leading soil farming institutes in the USSR.

At the same time, the "opinion" of plants was being organized with regard to new GOST standards. It was recommended that a meeting be held of the NTS [Scientific-Technical Council] section of Minselkhoz mash in order to obtain group support for the idea of reworking GOST. But nothing came of this. Leading specialists of the Minsk, Kishinev and several other tractor plants, representatives of USSR Gosagroprom and VIM, have demonstrated the scientific inconsistency of the norms and methods for assessing the action of the propulsive devices on the soil as proposed by machine builders.

But despite this the pressure is continuing. Recently within Gosstandart, under the leadership of B. N. Sokolov, a final meeting was held of the work group, to which plant representatives were invited. But only the speech of V. A. Goberman was heard; no one else was permitted to speak. In a hurry, B. N. Sokolov demanded from the developers of the standard to compromise with the demands of the NPO NATI. Further, he announced that if there is no agreement with machine builders then he would reduce these GOST standards to the level of recommendations. This is how B. N. Sokolov stopped the action of GOST!

In other words, Gosstandart supported not the demands of farmers but the gross pressure of the former Minselkhoz mash and the group of scientists-machine builders, who ambitiously defend their ossification.

Thus perhaps under contemporary conditions a peasant does not require such a state standard? Let individual plans develop their own technology, the kind that fields are waiting for and not the kind that wound them. When will the bureaucratic charade finally end and when will the farmer himself be able to order the designs he needs?

### Responses to Above Articles

18240252 Moscow SELSKAYA ZHIZN in Russian 1 Jul 89 p 2

[Letters to the editor and editorial commentary: "The Groans of the Field Have Been Heard"]

[Text] "The Field Groans in Pain" was the title of an article published on 10 November of last year. It discussed the fact that powerful machines manufactured by our industry compact the soil greatly, damaging it. For this reason each year we underproduce about 15 million tons of grain. Over a million tons of fuel are burned annually pointlessly. Then on 11 February of this year an article entitled "On the Sly Under Departmental Jurisdiction" was published, also devoted to this problem. Special GOST standards came to the defense of the land—the breadbasket. But some are making the attempt to weaken and repeal the standards.

The editors are still receiving responses. We are publishing three of these, expressing polar points of view. They reflect a situation that has developed surrounding the GOST standards.

### One-Sided Approach

We read these articles and were surprised. The most serious problem of contemporary farming is being interpreted one-sidedly. This is especially noticeable when the authors become involved in arguments with specialists.

As a result the opinion may develop that only VASKhNIL institutions are concerned about the problem. Machine builders, in opposition to the recommendations of scientists-agrarians, are producing multi-ton units which are destroying the soil. This is not so. In reality the goal of both groups is one and the same—to preserve the fertility of the soil and to reduce to a minimum the deleterious effect of machines on the soil. In our opinion, the essence of the scientific dispute has to do with something else: What criteria should be used to assess this technological effect and what standards should be made law?

Disputes between scientists-agrarians and industrial specialists became more acute after the confirmation in late 1986 of standards for the norms and methods for assessing the action of technology on the soil. In our opinion, the standards that have been passed are based on erroneous assumptions and do not take several important factors into consideration—the fertility of the soil, the technology for cultivating the crop, the load on the propulsive device, its grapple, the size and form of the support structure, the speed of movement and other factors. These standards have not undergone extensive examination under various soil and climatic conditions. For this reason, their practical use does not guarantee that the right decisions have been made.

From the position of accumulated knowledge and experience, industrial specialists greeted the new GOST standards with dismay, as a hindrance to the development and modernization of propulsive devices with the tolerated action on the soil. A testing of these standards in various zones has shown that they do not “work”; a tractor that does not correspond to the GOST standards compresses the soil less. An analysis of the conclusions sent by experts show that the majority of specialists have noted the need to make certain changes in the GOST standards or to rework them. This is a collective opinion—a serious reason to reexamine them.

We feel that in principle it is correct to pose the problem of decreasing the damaging action of machines on the soil. But we cannot agree with the statement that a repeal of the GOST standard is contrary to the interests of the state. On the contrary, the aforementioned GOST shortcomings make the standards unuseable to solve problems since industry has been put in the position of redesigning tractors and other machines in a direction which may result in the development of unprofitable

technology. The widening of the caterpillars will result in an increase in the weight of tractors by an average of 500 kilograms and in the annual increased expenditure of 400 kilograms of fuel. Moreover, this will complicate or make impossible the development of tractor-agricultural machine units.

The problem raised by the newspaper is a complex one and it must be dealt with through the joint efforts of agronomists, soil scientists, agricultural production technologists and engineers. More than once we have asked the developers of the GOST standard to sit around a discussion table with us. But we were not able to achieve anything. We can explain this only by the fact that even in our time a scientific monopoly is possible. We cannot oppose every direction for each other. We must look for a solution to the problem together.

*[Signed] S. Smitrichenko, deputy director for scientific work of the NPO NATI, doctor of technical sciences; M. Lyasko, laboratory directory and candidate of technical sciences, Moscow.*

### Research Confirms

The research conducted in our institute and the experience of enterprises in the Ukraine confirm the need to adhere to GOST 26955-86. This is why we support the opinion expressed in the articles, “The Field Groans With Pain...” and “On the Sly by Departmental Jurisdiction.”

The basic table of this GOST standard indicates the significance of maximum soil pressure. The standard can realistically be achieved by agricultural equipment. After all, standards are adhered to abroad for heavy-wheeled machines, with low-pressure tires of the “Terra Tire” type. In many countries, as here, the maximum load on the axle is also limited, which is the dominant factor in the compaction of the soil at a depth of 18-50 centimeters. For this reason it is essential to adhere to GOST with regard to normal soil pressure at a depth of 0.5 meters.

Our institute studied various methods for decreasing the pressure of propulsive devices of mobile units. We were able to decrease soil pressure by a factor of 1.5-1.8 by means of installing double wheels.

Strict adherence to and fulfillment of GOST standards and recommendations will enable us to considerably decrease and eliminate the negative action of mobile devices on packing the soil and destroying its structure, to increase the productivity of agricultural crops and to decrease energy expenditures and the expenditure of fuel per unit of production obtained.

*[Signed] A. Yushin, V. Yevtenko, Yu. Vlagodatnyy, specialists at the Ukrainian Scientific-Research Institute of Mechanization and Electrification of Agriculture, Kiev.*

### We Support, Make Proposals

On the chernozem soil of our oblast each year there is a decrease in the humus content. One of the reasons for this is the great compaction action by tractors, cars and self-propelled machines.

Heavy wheel tractors are used here extensively. Everyone sees how they compact the soil, but it is impossible to change the situation. Better machines are not available. Those who order industrial technology have nothing to do with the soil and the harvest.

In supporting the opinion of the newspaper, we feel that the administration of the APK [Agorindustrial Complex] and VASKhNIL must utilize economic factors to decrease the price for technology that compacts the soil above the norms designated in the GOST 26955-86 standard, that decreases yield and that results in the overexpenditure of fuel and lubricating materials.

*[Signed] Ye. Zhustin, director of the department for operation of the machine and tractor fleet and labor safety of the Penza Agricultural Institute; L. Lebedev, director of the soil science and agrochemistry department; Ye. Kuzin, candidate of agricultural sciences; V. Korotkov and A. Orlov, lecturers in the farming department, Penza.*

### From the Editors

This is not the first time that SELSKAYA ZHIZN has raised the problem of the harmful action of propulsive devices on the soil. But no changes for the better are occurring as of yet. The problem must be dealt with by the introduction of the new GOST standard.

Well, here the standard has been passed. Immediately, it resulted in the active opposition of machine builders. Our reporter became acquainted with many documents which reveal the kind of fight that has developed about the standards. As we have noted, the new GOST standards are like a knife to the throat for machine builders. They will have to reorganize their work, change machine designs, readjust production. Of seven experts who have a professional relationship to the problem, six unequivocally recommended the introduction of GOST in the form in which it exists. And not all machine builders oppose this. The representatives of many plants support GOST. We even criticized the collectives of the production associations of Volgograd and Kharkov tractor plants, which do not want to modernize the running element developed 50 years ago. The representatives of the Minsk tractor plant even proclaimed that the introduction of new tires based on the demands of GOST 26955-86 will result in an improvement in the pulling qualities of the propulsive device and in the competitiveness of the machine on the foreign market.

In studying the problem, the editors came to the conclusion that the struggle against GOST was carried out primarily using the same methods used in dealing with questions about diverting a part of the current of

northern rivers to the south, the use of the paper combine on the Baykal, and the harmful action of chemicals on Yasnaya Polyana...It became clear that the time had come to bring the problem out onto the pages of the newspaper. This was done.

What do the responses show? Agricultural scientists, specialists and machine operators support GOST and recommend that USSR Gosagroprom and VASKhNIL utilize economic factors and decrease the price of technology that does not meet GOST 26955-86 standards. S. Dmitrichenko and M. Lyasko are opposed precisely to this GOST. The editors showed their letters to one of the leading specialists on this problem, V. Rusanov, director of the VIM laboratory. Here is what he said:

"What they say is not accurate. Their position was the moving force in the 3-year battle against GOST."

Why do the specialists of NPO NATI hold so firmly to their positions, not wanting to listen to anyone? The fact is that a theory has been developed here that examines the problem of the effect of the propulsive device on the soil, as have proposals for solving the problem. This theory, or rather concept, was examined by the All-union meeting of scientists and specialists as early as 1985 and recognized as scientifically unfounded. Its essence is that the installation of another group of tires—their doubling on the tractor or other equipment—will result in an increase in soil compaction.

The creator of the concept is M. Lyasko. Publicly and in print he was shown that it is absurd and that it does not correspond to any known theoretical ideas or experiments. Essentially, this concept leads to a dead end. Unfortunately, NPO NATI could not make an objective assessment.

The theoretical and practical foundation of GOST and the weakness of M. Lyasko's concept are demonstrated in the conclusions of one of the greatest specialists on the problem, V. Katsygin, doctor of technical sciences. But S. Dmitrichenko and M. Lyasko continue to look for various approaches to discredit GOST.

"I could provide voluminous information on the methods used by S. Dmitrichenko and M. Lyasko in their battle, to provide active elaborations by experts, the inclusion of people who are not specialists on the problem in the group of experts with the help of USSR Goskomstandart," continued V. Rusanov. "I would like to note just one fact. At all stages of this unscientific struggle, the workers of USSR Goskomstandart, led by B. Sokolov, were on the side of the group of producers of technology and not of consumers. We feel that these unlawful methods require the corresponding assessment because all of the tests carried out up until this time demonstrate that the introduction of GOST 26955-86 is quite effective for the country."

Despite the demands of agroprom workers in Goskomstandart even today, support continues for the group of



equipment producers without a consideration of the damage that is brought to fields.

Responses to the articles, "The Field Groans With Pain..." and "On the Sly Under Departmental Jurisdiction" have also been received from the former Ministry of Agricultural and Tractor Machine Building. The signature is that of A. Skrebtsov, deputy minister. Basically he restated the letter of S. Dmitrichenko and M. Lyasko. In other words, they have the same viewpoint. How recidivistic are the dictates of manufacturing technology!

The editors await a response to their article from the administration of USSR Goskomstandart.

### Problem Reiterated

18240252 Moscow ARGUMENTY I FAKTY in Russian  
No 29, 16-22 Jul 88 p 8

[Untitled article by V.A. Tikhonov, VASKhNIL academician]

[Text] *As of now, the country is continuing to manufacture heavy tractors such as the Kirovets, which traumatizes the soil and brings irreversible harm to it. What can we do about this? I would like to have one of the well-known scientists-agrarians answer this question.*  
[Signed] Ye. Stepin, Sverdlovsk Oblast.

Responding to this question is VASKhNIL Academician V. A. Tikhonov.

The problem is not only the Kirovets, although I agree with the assessment of this tractor. This is the "white elephant" the peasant does not need, but he is forced to take it because he has no other offers. The plant that manufactures this machine does not plan to reject it because its manufacture is advantageous to it.

Tractors are distributed to kolkhozes and sovkhoses according to the schedule of allocations and are sold at a price that is paid for either via state budget investments or by bank credit that does not have to be repaid. It's a poor machine, but it's free!

Our industry is involved in the overproduction of a number of machines which are no longer needed by kolkhozes and sovkhoses, but the latter are allocated this equipment in planned order. For example, we have the tractor of the Tashkent plant, the Sibiryak combine. Now the Don combine is coming off the conveyor. It will bring enormous additional expenditures to agriculture. According to my calculations—I was the chairman of the expert commission on the economic effectiveness of these machines—it turns out that when we equip our entire fleet with these machines, additional production outlays will increase by 11 billion rubles per 200 million tons of grain in the harvesting of grain crops alone, because this machine is very expensive to manufacture, use and service. Few people think about how much more expensive grain is and who will pay for these outlays. Incidentally, the answer is clear—it will be the consumer, i.e., you and me.

We do not have purchasers, only receivers. We also have no sellers, just suppliers. For this reason, the receiver, who does not have his own means of payment at his disposal, cannot influence the producer. The mechanism of competition between producers has been eliminated, and they have an unbounded opportunity to force their goods on the consumer at any price.

Here is an example of the monopoly. Lipetsk designers, young and talented, have designed an excellent model of an integrated tractor. The Ministry of Agricultural Machine Building assiduously "killed" this model in order to support the monopoly of the Minsk plant. Under public pressure the ministry borrowed a West German tractor and insisted that a new machine be designed based on this tractor, crushing the Lipetsk plant and its KB [Design buro].

...We should not forget the prophetic words of Lenin that "any monopoly unavoidably gives rise to the striving for stagnation and festering." Life shows that in order to eliminate departmental monopolies it is not enough to have only the single power of the central administration. The overall development of economic competition is needed.



## POLICY, ORGANIZATION

**AUCCTU Secretary on Violations of Domestic Trade Laws**

904D0008A Moscow IZVESTIYA in Russian  
30 Sep 89 Morning Edition p 2

[Interview with AUCCTU Secretary L. Kazakov by A. Protsenko: "A Million from under the Counter"]

[Text]

[Protsenko] Leonid Davydovich, it has been exactly one year since workers' control over retail trade, public catering and consumer service enterprises has been reinstituted on the initiative of the All-Union Central Council of Trade Unions (AUCCTU). Is it yet time to assess the results of this endeavor?

[Kazakov] Yes, it is. But what is the criteria by which successes and failures of workers' control should be measured? By the volume of goods returned to store shelves? By the number of employees punished for dishonesty? I am afraid that the numbers will show little in this area. And yet...

We have recently calculated that in the past six months workers' inspectors uncovered and returned to the shelves R20 million worth of concealed goods. A year ago, when everything was just starting, a similar quantity of goods would be brought up from under counters, closets and storerooms in only a week or a week and a half. Dozens or even hundreds of thousands of rubles worth of manufactured and food products in short supply could be found practically in any store. They were not on the shelves, of course. The practice of hiding goods in short supply still persists. But workers' inspectors in Kuybyshev Oblast, for instance, conducted 397 inspections during August and found only R57,623 worth of concealed goods. That little in a full month of inspections!

There are, however, examples of a different kind. Here is the latest report from Chuvashia: in the Shemurshinskiy Rayon retail association's department store, workers' inspectors found R5,600 worth of jewelry, 80 pairs of ski boots and 25 shearling coats in the course of a single inspection. At the "Volgovyatselektrostroy" complex warehouse, R3,774 worth of children's hosiery, women's suits, men's sweaters and other goods was being held for the so-called important people. At the store No.4 of the Volga River navigation association, R2,600 worth of concealed goods was discovered, and 18 pairs of imported women's boots had been sold by the store's employees from under the counter before workers' inspectors got there.

[Protsenko] In other words, the struggle goes on but success is uncertain? Or did the system manage to adapt to workers' control just as it had adopted to all other threats to its existence?

[Kazakov] We are not expecting total victory. We see workers' control as an emergency measure and it is not meant to bring total order into retail trade, public catering and other service industries. We need serious changes in the economy and saturation of the market with goods and services. This we still lack.

As to the system, it is indeed trying to adapt. For instance, in many cities and oblasts special orders have been issued listing goods in short supply which should not be put on the shelves but distributed by special orders and sold at enterprises. One would think it a reasonable measure. However, under the guise of special orders, goods in short supply disappear along the same old channel: i.e., they go to salesmen's cronies and to speculators and middlemen. Another trick is to sell goods directly from warehouses and distribution centers, whereby the store gets only a receipt and the money. When inspectors arrive, they find the storerooms empty. Yet, according to its papers, that same store was busily selling short-supply goods on that day.

[Protsenko] And how about the inevitability of punishment to those who violate the rules of Soviet retail trade?

[Kazakov] Here the numbers do not provide the answer either. We could say, for instance, that in Rostov Oblast in the past three months 635 service sector employees have been disciplined or administratively punished, and in Kuybyshev Oblast, 1,194 employees in August alone. But the idea is not to cast the widest possible net. The problem is that in our system punishment is far from inevitable.

Why? First, because the system of workers' control by trade unions is still in its development stage. The oblast level system is functioning rather well, but at the rayon level the system is still being set up. We have not yet covered every store, cafeteria or service center. The proof of it was a raid conducted by the Voroshilovgrad Oblast trade union council's workers' inspectors in Markovskiy Rayon. At the department store of the local retail trade administration they found R2,928 worth of imported shoes. Those shoes had been hidden in the storeroom since 1972. Naturally, they all had rotted. This means that it was the first inspection at the department store, where concealed knitted garments and accessories were also found.

[Protsenko] Practice has shown that those who protect violators most often themselves use the back door and illegal privileges. They include party, soviet and union employees. This was the situation a year ago. Has anything changed?

[Kazakov] Almost nothing. Highly positioned individuals at various levels still think that they are entitled to buy goods directly at wholesale distribution centers or at storerooms. They justify it by saying that all enterprises have special order systems and some goods are sold directly at enterprises. Why should they be at a disadvantage? But having sold a shearling coat or a jar of caviar to an official, the enterprising store director will

use the same excuse to sell such goods to 50 of his cronies. And he will run for protection to the same official when workers' inspectors come knocking: the principle at work here is "you scratch my back and I will scratch yours."

In this situation one wonders if it would not be better to have a formal system of including party committee, ispolkom and trade union staffs on a general distribution list, as it is done at industrial enterprises. Workers' inspectors should then monitor the distribution of funds for short-supply goods. The most important thing is to make sure that everyone is equal.

[Protsenko] What have workers' inspectors learned during the past year?

[Kazakov] The past year has taught us some techniques. It turned out that it does not pay to assign one commission to a retail trade, public catering or service outlet for too long. First of all, attempts are being made to tame workers' inspectors, and such attempts do not always fail. Second, employees begin to recognize inspectors.

In places where order has been restored, inspectors begin to dig deeper: they monitor the distribution of funds for goods in short supply and check the work of order departments for veterans and the disabled. They often find interesting things: documents show that everyone attached to the department got their quota of short-supply goods while in reality they have seen none of it.

The membership in workers' inspectors corps is stabilizing: chance people leave and more active workers join up. Now we are trying to attract members of strike committees where they existed or still exist. Our inspectors have also become less timid before authorities: they have realized their strength and that they are needed.

But plenty of work remains. Increasingly, people appeal to workers' inspectors in cases which have nothing to do with retail trade, public catering and consumer services. How can workers' inspectors turn them down? We have had to turn our attention to pharmacies, for instance: last year alone, R2.3 million worth of medicines has been written off in this country. The cause is always the same: first pharmacy employees hide drugs in short supply to sell to their cronies and then the expiration date passes. We are also starting to inspect railroad stations and airports, where tremendous irregularities occur.

We have no illusions: workers' control will not solve all the problems that have accumulated in these areas. But it is not an excuse for doing nothing.

#### **Tsentrosoyuz Deputy Chairman on Consumer Co-op Tasks**

18270144 Moscow SOVETSKAYA  
POTREBITELSKAYA KOOPERATSIYA in Russian  
No 8, Aug 1989 pp 2-3

[Interview with B.I. Gontar, Deputy Chairman of the Presidium of the Union of Production Cooperatives: "A New Cooperative Union"]

[Text] A founding congress of consumer production cooperatives was held. Participating in its work were delegates from union and autonomous republics, krais and oblasts—a total of about 200 people. They represented 1,400 cooperatives within the sphere of goods and services.

The main goal of the congress was the creation of a Union of Production Cooperatives, an examination of the draft regulations proposed by the organizational committee and the election of management and control organs.

B. I. Gontar, deputy chairman of the Tsentrosoyuz [Central Union of Consumer Societies] administration, was elected chairman of the new union's presidium.

Our reporter asked him to discuss the goals and tasks of the union and the problems he will have to deal with.

[Reporter] Boris Ivanovich, you have been selected as the presidium chairman of the Union of Production Cooperatives. Won't this be a burden for you? Will you be able to devote enough time to your new duties? After all, you have many responsibilities without this.

[B. Gontar] It is true that there is a great deal to do. But I know the needs of production cooperatives very well. I have dealt with them previously in my work. This is why I agreed to head the union. The need for one developed long ago. There is an urgent need to develop production cooperatives, but often artificial barriers have been put across their path, and sometimes there are objective interferences—the shortage of raw materials, facilities, equipment and so forth.

Having united, cooperatives will be able to deal more successfully with many problems. This is why the idea of unifying was supported by almost everyone who attended the congress. After all, together it will be easier for cooperatives to fight, for example, the arbitrariness of local bureaucrats, which occurs everywhere. In addition, everyone understands that cooperative members will be able to receive more practical aid from Tsentrosoyuz and cooperative organizations.

It has been suggested that the union administration develop the basic directions for interrelations with and participation of union representatives in management and control organs of USSR Tsentrosoyuz.

[Reporter] Now we have approached another question. What specific goals is the new union setting for itself? What is the purpose of its creation, in view of the fact that similar unions exist not only in republics and oblasts but even in many of the country's rayons and cities.

[B. Gontar] It is true that unions created from below fulfill many of the same functions. They also have adequate rights, but there are many fewer opportunities to implement them. Our union will help them in this. Finally, if necessary we will be able to more effectively influence cooperative organizations which do not heed the needs of cooperatives in the sphere of goods and

services. Also it will be easier to find a common language with local party and soviet organs.

The union intends to build its operations on the basis of the following principles, as put forth in the regulations—enterprises will be free to join or leave the union, and there will be equality among members and the supremacy of elected organs over executive.

I would especially like to note that local unions and cooperatives retain their independence in carrying out economic operations.

Here it would be appropriate to note that a union of cooperatives or a cooperative operating within the system of USSR Consumers' Cooperatives or within other branches of the national economy, state enterprises and other organizations can become members.

The main tasks of the union are to assert the rights and legal interests of its members, to defend them in state and other organizations and enterprises, to coordinate operations with other management organs of USSR Tsentrosyuz and to contribute to strengthening of economic ties with consumers' cooperative organizations on a contract basis.

We will also become involved in the development of ties with state and public organizations both within our country and abroad.

The union is called upon to cooperate in solving the problems of social development of its members—work, rest and everyday living conditions. Cooperatives will receive information on the assortment of goods being produced, on trade, on quality, on prices for goods, on sales conditions, the organization of advertisements and so forth.

Very important is the fact that the union will provide methodological aid on questions dealing with economic and financial operations and will participate in providing cooperatives with the essential normative and informational documentation.

We will also be involved in questions of improving the competitive value of our products and of advertising goods and services, including on the foreign market.

Of course, every position in the regulations must be translated into business terms; a program of specific measures must be developed. In particular, we intend to arm cooperatives with economic knowledge, modern techniques and management methods.

In order to implement the aforementioned in practical terms it is planned to organize local consultation points and to publish methodological recommendations and elaborations. With this goal in mind we propose to invite highly-trained specialists on a contract basis.

The fact that the union's presidium chairman represents its interests in the Tsentrosyuz administration is important. This means that we can effectively influence decisions having to do with the operations of cooperatives in the sphere of goods and services. Of course first and foremost we will strive to make proposals that will affect the operations of cooperatives to the largest degree and to push for their fulfillment.

We plan to receive information from union members on a regular basis. In certain cases we will interact with the executive committee of the soviet of people's deputies and we will maintain a constant tie not only with cooperatives (unions) themselves locally but also with the directors of cooperative organizations.

[Reporter] In letters to the editor cooperatives are interested in the work of their colleagues in other republics and ask what products they themselves should produce. Some ask about the capacity of the market for particular goods in various parts of the country. Will they be able to receive an answer to similar questions from the union?

[B. Gontar] Yes, and the answers will be the most up to date. We plan to generalize the experience of the best and to disseminate it. For this purpose the specialists that are brought in will prepare overviews, present lectures and discussions, visit cooperatives and provide practical aid directly at the work place.

Brochures describing work experience, as well as methodological literature, will be disseminated everywhere; first and foremost it will be received by union members. And we do have information to share. Let us look at least at non-traditional products produced by cooperatives within the sphere of goods and services. For example, there is the baking of bread and rolls using old forgotten recipes. Such masters have been found in the Ukraine. Felt shoes are being produced by cooperatives in Ivanovo Oblast. In Kobuletskiy Rayon of Adzhariya (Georgian SSR) cooperatives are using a simple machine tool to make wire netting as protection for garden plots. At that same place wood waste products are used to produce heels for shoes; these are acquired willingly by people who are involved in individual labor and by enterprises.

It is difficult to reveal the functions of the union in a short discussion.

[Reporter] Nevertheless, from what you have said above it is possible to form a certain impression—the operations of the union are multi-faceted and its usefulness is obvious. However, won't it be transformed into a supplementary management superstructure with time?

[B. Gontar] With complete assurance I can say that this will not happen. Judge for yourself—the presidium and all of the members, including the chairman, will work on in public. The operations of the revision commission are built in a similar manner. Only the members of the executive committee work according to a labor contract. I think that we cannot do without this. After all they will

be involved in the practical fulfillment of the decisions of congresses, the presidium and plenums and in the organization of specific aid for those who need it.

Finally, every member of the union can choose to leave it. In this way, the democratic foundations of its operations are guaranteed. All of this provides the basis for assuring you that the union presidium and its executive and other organs will not become a new administrative-bureaucratic apparatus. In addition their decisions will only be recommendations.

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## GOODS PRODUCTION, DISTRIBUTION

### Conversion: Plant's Product Line, Profit Decline Discussed

90UM0039A Moscow TRUD in Russian 12 Oct 89 p 2

[Article by Ye. Druzhinina: "At the 'Secret' Plant"]

[Text] The "beating of swords into ploughshares" has begun in the nation's defense industry on a massive scale. As we know, this process is called conversion. In the Leningrad association "Plant imeni M. I. Kalinin," conversion is being materialized into objects that are clearly in short supply in our homes at present.

I never did find out what the basic product of the association is, even in general terms. Except for the abstract term "article," the people I talked to said not a word about it. But the chief economist of the association, B. Borkovkin, and the chief designer of the department of consumer wares, A. Sergeyev, talked about everything that has to do with the manufacture of civilian products. And they demonstrated them with evident satisfaction.

I was seated in the center of a special acoustic room and for a start they demonstrated the "star" of conversion—the "Statik" stereo sound reproduction unit. They turned on the player, and a powerful, pure chorus floated down from the tall flat speakers and walls of the room. This was truly high-quality sound.

"Now we will turn on an English unit, made by the 'Quad' ['Kvot'] company, for comparison," said Aleksandr Sergeyev.

I compared the sound. It was clear even to a dilettante that the quality of the sound from the domestic unit was higher than from the English. As I learned, specialists from Poland and the FRG who were shown the "Statik" had reached the same opinion. Such acoustic units, reproducing the sound from any receiver practically without distortion, are made only in a few highly-developed countries. And it appears that the demand for them is very high. I was told that according to the popularity index of technical consumer items, units creating high-fidelity musical sound in the home held third place. While, for instance, video equipment

remains at the bottom of the second 10 on the list. Presently in our country the picture is generally the opposite, but it cannot be ruled out that within a few years the "Statik" will also be a necessity in each of our homes.

Incidentally, it is no accident that the English units cost 2,200 dollars, while our speaker costs only 250 rubles. That is how far we are out of step with world prices—was B. Borkovkin's comment on the situation.

The "musical" subject matter of the consumer products was continued in the association with the manufacture of the "Kvazar" cassette tape recorder, player, and the "Forum" low-frequency amplifier. The "Forum" is suitable for any domestic or imported sound-reproduction equipment.

And here is another novelty that should interest car enthusiasts.

Aleksandr Georgiyevich demonstrated a small, quite elegant case containing a portable "Temp-1" compressor for pumping tires. This is a design of association specialists. The compressor costs 39 rubles and has already been patented in eight countries.

Nor have they forgotten humanity's better half. For some years now there has been no problem finding electric curling irons in Leningrad stores. Now the model has been improved. But while there is no shortage of irons, the "Stezhok" miniature manual sewing machine, costing just 11 rubles, is immediately gathering queues in those stores where it appears.

There were plans to produce these and other consumer items this year worth 35 and a half million rubles. But the plan has already been exceeded by almost a million. The growth in volume for next year is expected to be double.

"Life itself is impelling these conversion rates," says the chief engineer of the association, A. Zakharov. "In order to maintain smoothly operating production, we have to seriously prepare for the transition to 'peacetime' channels."

What difficulties has the "Plant imeni M. I. Kalinin" encountered in the transitional period?

"Of course conversion does not proceed without pain to the collective," recounts Boris Borkovkin. Because of the mass production of very cheap consumer products instead of the expensive "articles," the enterprise's profit is dropping. This year it fell by nearly 15 percent. In order that defense-industry enterprises not be "left behind," for the time being our losses are compensated from the state budget. It is expected that we will balance income and outlays independently in the future.

Another problem. As you know, the high demands made on the "articles" created a backbone of highly professional workers and engineers in this sector. But their work was encouraged by specific benefits. Now these

specialists have been forced to switch to making civilian products. We will probably have to keep giving them all the benefits in order to maintain a capable collective, and by so doing raise the prestige of consumer product manufacturing. This question is now being considered in the GOSKOMTRUD [State Labor Committee].

We will increase the volume of civilian production without losing sight of its qualitative level. The fact is that, in our opinion, the market will be flooded with industrial products very soon, even though this might be hard to believe now when you look at the empty shelves. Nevertheless, it will happen, and we must prepare for competition with other manufacturers of the same tape recorders and players.

But how can we resolve prospective problems if we do not succeed in concluding contracts for next year's shipments of component parts? For example, the Novgorod association "Kompleks" is not taking orders for transformers which no one else in the country produces any more. The transformers are needed to produce apartment security devices. The "Kopir" plant of Kozmodemyansk does not want to supply electrical outlets for the players, and we have plans in the association to produce 100 thousand of them next year. Our Leningrad "Pozitron" is also letting us down.

But despite the difficulties, the association "Plant imeni M. I. Kalinin" is most resolutely intent on conversion. We have opened up our own company store. For the present it is not all that rich; products are not accumulating on the shelves. But as early as next year new products will be appearing there; preparation for their production is just concluding in the association. These include new stereophonic cassette tape recorders and a pneumo-hydraulic automobile jack...

And one other direction has been chosen in the association: medical instruments. Among the first developments is an instrument for measuring arterial pressure, and others.

I want to believe that conversion truly will result in beautiful items that people need. After all, we know how to make the most complex weapons. Could sewing machines really be more difficult?...

## HOUSING, PERSONAL SERVICES

### RSFSR Housing Official Discusses Private Ownership Provisions

18270151 Moscow *LITERATURNAYA GAZETA* in Russian 20 Sep 89 p 11

[Interview with Vladimir Ivanovich Popov, RSFSR minister of housing and municipal services, by Vyacheslav Baskov: "How To Buy an Apartment?"; date, place, and occasion not given]

[Text] It is good to have a state apartment, but, most likely it is better to have one's own. However, everyone says that

in the USSR no "one's own" apartments exist—"one's own" homes do exist. However, there probably will be many of them soon, very soon. As long ago as December of last year the USSR Council of Ministers adopted a decree permitting the purchase of the apartment in which one lives, or in an old house, where no one lives any longer. People say that several apartments have been sold in the Ukraine. Nevertheless, few know how this is done.

[Correspondent] Vladimir Ivanovich, as long ago as 2 December 1988 the USSR Council of Ministers adopted decree No 1400 "On the Sale of Apartments in State and Public Housing to Citizens for Private Ownership." If you took part in the work on the draft, could you tell us why the statute on this was approved by the republic's Council of Ministers and the AUCCTU only after half a year—on 21 April of this year?

[Popov] If you want to say that a long time passed from the adoption of the decree until the adoption of the statute, you are mistaken. This is a very short period. A statute is a working document. In order to work it out, we had to alter hundreds of things. I will mention several: Inventory of available housing was carried out and people, who were supposed to handle the sale of apartments to citizens, were selected... In the Russian Federation there are 1,531,916 residential buildings under the authority of local soviets. Their area totals 1,321,486,500 square meters. In the course of the inventory it was disclosed that 200,000,000 square meters of living space in houses from Khrushchev's time required major repairs and 90 percent of them needed reconstruction. So, enormous work was done. I dare to assure you that it has not yet been completed. Our society is tired of haste and premature decisions. Excessive hurry usually leads to an opposite result—sometimes losses run into billions of rubles. At the same time, please consider that only yesterday it was impossible to even think about private ownership of apartments. The state took upon itself literally everything. Now forms of property and, above all, the attitude toward them are being reexamined. In the transfer of what not long ago belonged to the state to individuals I personally don't see a deviation from the principles of socialism or encouragement of private-ownership frames of mind. State, cooperative, and individual housing construction should develop in a sensible combination. The sale of apartments only supplements this list. Finally, the administrative worker in the system of the Ministry of Housing and Municipal Services is an ordinary person, who needs to be given time to mature. As already stated, only yesterday private ownership of apartments was not allowed even in thoughts, but today it is permitted and it is necessary to "introduce" it and to campaign for it! We must find ways of solving this problem and determine the legal regime of such a living space and the procedure of maintaining and repairing private apartments... We very much don't want to ruin a good endeavor with haste at the very beginning.

[Correspondent] What prompted the government to adopt such a decree?

[Popov] The desire to improve housing conditions for citizens. A person has a much more careful attitude toward something that belongs to him than toward something that belongs to "no one." Now a great number of people turn to housing organizations on the slightest occasion: They ask that windows be weather stripped, make applications for the installation of a lock, and some even report that a bulb burned out, requesting that a man be sent to put in a new one. This is not out of fear of heights or inability to install a lock, but out of the firm conviction: Once a housing maintenance section or a repair and maintenance section exists and people, who are paid wages, sit there, they should provide services! When an apartment becomes one's own, a person will both repair his faucet better than a plumber, who graduated from a vocational and technical school yesterday, and weather strip his window. And, incidentally, he will begin to criticize housing workers less. Furthermore, a person's own apartment will give him the feeling of being settled. It will be possible to bequeath to one's children an apartment, which becomes one's property, like any other property. This is a very important aspect of the adopted decree. Yes, let it be known to all that in small provincial cities hundreds of thousands of people do not have any hope at all to improve their housing conditions some day. Owing to this also, they pick themselves up from a place and leave. An apartment, which will become the object of inheritance, is sure to attach a young person to his native home, or to bring him back there from afar.

[Correspondent] Incidentally, decree No 1400 also states that the sale of apartments for private ownership by citizens "will contribute to a careful attitude toward housing and to an increase in its durability." Thereby, the government does not hide that it primarily is interested in the purchase of apartments by citizens.

[Popov] Not quite so. The idea of selling state apartments for private ownership is not new. It came from the citizens themselves. Simply, I repeat, previously such proposals were perceived as blasphemous. I would consider decree No 1400 a solution of a long-urgent problem.

[Correspondent] Nevertheless, with this act, voluntarily or not, an admission is made that housing organizations have not lived up to the trust placed in them, houses are maintained poorly under their guidance, and now hope rests with the citizens themselves. However, please explain: Still, what sense does it make for citizens to buy apartments, in which they live anyway? Incidentally, according to housing legislation, they must repair them themselves.

[Popov] The same sense as during the purchase of any item. You can rent a bicycle and you can buy it in a store and not let anyone ride it. You can rent a refrigerator, a vacuum cleaner, and dishes... However, this is a totally different matter than calling these same things your own. One's own things form the concept of a home and a family. With respect to your criticism of our housing

workers I accept it unconditionally. Only unfair criticism offends us, but we accept fair criticism. However, I ask that you take into account that housing organizations incur constant losses from the maintenance of houses. In the RSFSR they total 150 million rubles annually. Private apartments will enable us to reduce expenses, because tenants will begin to do more with their hands and, I hope, much more than state employees. Look what the attitude of people in the state sector and in a cooperative or an individual home toward their housing is—it is different! In his apartment a person is transformed from a dependent into a master and he brings up his family in the same spirit.

[Correspondent] Several versions of apartment sales are envisaged. First, an apartment can be bought only by those who live in it. Is the consent of all family members necessary, or does the person who most of all wants to buy the apartment have the right to do so? Will the new decree not cause family quarrels?

[Popov] If one wants very much, one can quarrel even without a cause. The decree stipulates that apartments can be sold to citizens who live in them, whether the house belongs to a local soviet or a department. The transfer of apartments for private ownership can be made only with the consent of all adult family members who live together. When family members reach unanimity, the purchased apartment can become the property of one person, or two, or all—as they themselves decide. Now an apartment has only one responsible tenant. In the new situation this will not be necessary. Unoccupied apartments in houses subject to reconstruction or major repairs, in which all apartments are subject to sale, are also sold.

[Correspondent] Who can buy an apartment in a house subject to major repairs or reconstruction? And which one—any one that catches a person's fancy?

[Popov] Any citizen residing in a given settlement, as well as people who have come from the North, can buy an apartment in such a house. However, not any one, but with due regard for the norm of living space accepted by housing legislation. It is 12 square meters per family member. Of course, all benefits are in effect, as when a new apartment is received—I have in mind the right to additional living space. It should be added that a certain category of citizens have priorities with respect to the purchase of an apartment in these houses. They are so-called people on a waiting list, advanced production workers, participants in the war, and others. Either the executive committee of a local soviet, or the department that owns the house, makes the decision on the sale of an apartment.

[Correspondent] In such a case who should make the purchased apartment livable—the buyer himself, or the group of buyers, to whom a local soviet or a department agree to sell the entire house?

[Popov] I am convinced that a local soviet or a plant, factory, and organization must help to repair the apartment and to make it livable. However, the main repair burden, of course, lies on the apartment owner himself, or on coowners of apartments in the entire house—on the partnership.

[Correspondent] Can one family buy several apartments in a nonresidential house?

[Popov] No. When apartments are sold to citizens for private ownership, we must proceed from the general principle of housing legislation: One family has the right to one apartment or an individual home.

[Correspondent] Who determines the price of an apartment and how?

[Popov] This is the most difficult question. We have spent a great deal of time on solving it. Documents regulating the appraisal of a house and an apartment have been drafted. A mass of parameters—from the condition of an apartment visible to the eye to the location of the house and view from the window—are taken into consideration. "Model Procedure of Calculating the Sale Price of Apartments" and "model contracts" for the purchase and sale of apartments and houses and for their technical servicing and repairs by the owners themselves with the participation of housing and repair organizations and, separately, without the participation of owners, by housing and repair organizations alone, have been sent out to councils of ministers of autonomous republics and to kray, oblast, and city executive committees. In brief, many documents have been prepared and sent "to localities" for familiarization and possible supplements with due regard for local characteristics. However, it is unquestionable that the house owner will make an appraisal of an apartment or a house. An appraisal commission headed by the deputy chairman of the executive committee of the local soviet, or by the enterprise manager (possibly, his deputy), should be formed in the executive committee (if it is the owner of the apartment) or at an enterprise (if a department owns the apartment). However, if it is necessary to appraise the apartment, in which people already live, the appraisal is made with a mandatory participation of the tenants themselves—future buyers. I think that citizens interested in the purchase of an apartment will be able to turn to the executive committee, or to their enterprise, and to become familiar with the draft documents worked out by us. They are not secret. We will carefully study suggestions received from citizens and, if there are sensible ideas in them, we will take them into consideration.

[Correspondent] Will the rent, which tenants paid prior to their decision to buy the apartment for private ownership, be taken into account during the sale of apartments?

[Popov] No.

[Correspondent] Is this fair?

[Popov] Yes, it is. I have already said that housing services are unprofitable and the state subsidizes every square meter of housing, the subsidy totaling 7 billion rubles annually, because our low rent established in the 1920's completely disregards the fact that since that time the cost of building materials has risen dozens of times. The state pays an additional 5 rubles 34 kopecks per square meter of housing.

[Correspondent] Poor state—it only incurs losses from citizens! It forever makes additional payments for everything for us: Housing services are unprofitable, public transport is unprofitable, meat is unprofitable, and the metro is unprofitable... Perhaps the poor work of state organizations, not citizens, is unprofitable?

[Popov] With regard to housing services and public transport they are unprofitable indeed, not always owing to our poor work—mainly because of the low rates for services provided for the population.

[Correspondent] Because of low rates? A plumber summoned to clean out the clogging in a sink leaves a bill for 3 rubles. For cleaning out the clogging in the sewer system he leaves a bill for 6 rubles. You see, housing services have changed over to cost accounting! Is this cheap? Where do pensioners get such money? If life did not become more expensive at every step, perhaps the question of an increase in pensions would not arise?

[Popov] I can firmly state that we do not have such rates for these services.

[Correspondent] The tramway fare increased by 60 percent and the trolley bus fare, by 25 percent. Now one will not find a public bath for less than 50 kopecks, but previously tickets were sold there for 16 kopecks... How will an average statistical apartment be evaluated? In this matter will you also proceed from the "low cost of living" and "unprofitableness" of housing services? Please tell us what are now the prices on the apartment market?

[Popov] I can say that the cost per square meter of a total area in newly commissioned houses, on the average, is 266 rubles. For example, in a new brick house in the city a 1-room apartment of a total area of 36 square meters costs about 11,000 rubles; a two-room apartment of a total area of 53 meters, 18,000 rubles; a three-room apartment of a total area of 65 meters, 31,000 rubles. However, these are only approximate prices. In each specific case the appraisal commission will determine the price of an apartment.

[Correspondent] Let us assume that a person wishing to buy an apartment—whether the one in which he lives, or the one he finds in an old house—will be among our readers. Where should he turn first?

[Popov] Let him turn to the house owner—either to the executive committee or the department. However, I must warn you that departments have not yet reacted to the decree of the USSR Council of Ministers under



discussion. By the middle of August only two ministries adopted an appropriate decision on this matter. They were the Ministry of Construction in Northern and Western Regions of the RSFSR and the Ministry of Transport Construction. The rest are not ready to accept citizens. The share of departmental houses is very significant. On the territory of our republic 508,513,000 square meters of living space are under the authority of local soviets and 501,655,800, under the authority of ministries, as well as the plants and factories subordinate to them. However, we are ready for a meeting with citizens, but departments are not.

[Correspondent] Does the entire sum have to be paid right away, or have dates of payment been set?

[Popov] One can pay right away and in 10-year instalments. But I am for extending periods of payment over 20 to 25 years as is done in other countries; for example, in Hungary and Czechoslovakia. However, people wishing to buy an apartment should know that 10-year instalments will be given to them if their first payment is no less than 50 percent of the total cost of an apartment.

[Correspondent] Do some benefits exist?

[Popov] They should. Councils of ministers of autonomous republics, executive committees, and enterprises have the right to establish payment benefits for families with many children and badly-off families—to extend payments over 15, not 10, years and to lower the amount of the initial instalment to 30 percent of the established cost, that is, the sale price of an apartment.

[Correspondent] An apartment becomes private property. However, all other apartments in the house remain state ones. How can the relationships between the private owner and his neighbors and housing organizations be formed?

[Popov] This is quite a complex question. I can say that there are still many unclear points in it. It is only known that the private owner pays for all municipal services—gas, light, and heating—at state rates, like his neighbors. It is simpler to answer the question of what the private owner is to do in case of a fire in his apartment—the insurance of apartments is carried out on the same terms as the insurance of individual homes. Another thing is more complicated: What is he to do in a situation where neighbors from upstairs flood his apartment? Apparently, the housing organization should take his side and help him to assert his rights regarding the neighbor. Still, the private owner spares the housing organization many troubles connected with the care of his apartment. This person helps us to maintain housing in complete order.

[Correspondent] A few questions about registration. Does the owner of a private apartment have the right to register in or out whomever he wants in his apartment?

[Popov] All manipulations with registration in private apartments are made in accordance with ordinary registration rules.

[Correspondent] Can a private apartment be exchanged for a state apartment?

[Popov] Of course. I think that councils of ministers of autonomous republics, kray executive committees, and oblast executive committees will not put obstacles before this.

[Correspondent] What is to be done with an intercity exchange? Now much significance is attached to how often a person comes to a city and how often he leaves on an "exchange" basis.

[Popov] Housing legislation gives the answer. However, I would like to note that the demand for an equal number of people who come and leave on an exchange basis is not mentioned in the law.

[Correspondent] Can an apartment be sold?

[Popov] The person who buys an apartment has the right of ownership to a full extent. He can give it as a gift and bequeath and sell it.

[Correspondent] If the owners of a private apartment are crowded in it, are they placed in line for a state apartment? Not everyone is able to solve his housing problems through the purchase of an apartment exclusively. Still, even the purchase of one apartment is a slightly too expensive pleasure.

[Popov] If it is recognized that a family needs improved housing conditions, to be sure, it will be placed in line for a new apartment on the generally accepted basis.

[Correspondent] And if it wants to lease out the purchased apartment?

[Popov] By all means.

[Correspondent] Vladimir Ivanovich, what do you think: Is the state not withdrawing from housing construction and housing services, transferring these two sectors into private hands?

[Popov] In no way. Housing construction will be carried out as before. At the same time, housing benefits and privileges are retained for socially unprotected population groups—disabled persons, participants in the war, families of lost servicemen, pensioners who receive minimal pensions, single mothers, families with many children, sick people, and so forth.

[Correspondent] How many years does a residential home last?

[Popov] The average life of a panel, block, and stone house is 100 to 150 years.

[Correspondent] We have houses from last century and even from the century before last. Everything has already been paid for them...



[Popov] Let the appraisal commission decide this in each specific case. Quite dilapidated houses should be demolished, not sold.

[Correspondent] Often, however, they are accepted for major repairs without moving out tenants. For people this is a real and, unfortunately, widespread calamity. It happens that such repairs go on for years. Does the owner of a private apartment have the right to somehow protect himself and members of his family against this torment and unconscientious builders, who cannot do repair jobs quickly?

[Popov] I know that major house repairs should last no longer than 2 years. However, if it is only a matter of changing pipes and sanitary engineering installations, such work should last a week or two. Tenants of a house, regardless of whether they are private apartment owners or, as before, live in state apartments, should not proceed from their wishes alone. Major repairs of a house are made in the interests of all those living in it. The fact that repair organizations must strictly observe the length of major repairs is another matter.

[Correspondent] Nevertheless, all of us are now without rights regarding builders, who carry out major repairs for years. Will the owner of a private apartment be able to influence them somehow?... Vladimir Ivanovich, readers probably will be interested in finding out if someone has already bought an apartment. Who are these people and where do they live?

[Popov] In cities in the Russian Federation only about 2,000 apartments and houses have been bought for now. However, I am confident that in about 1 and 1/2 to 2 years apartments will sell like hot cakes. Only I would not raise

the prices of apartments and houses. The goal of the state is not to pump out as much money as possible from purses, but to collect money and transfer it for the construction of new housing. It is extremely complicated and expensive for our housing services to maintain available housing. So, people with initiative should be supported... I don't know whether this is an anecdote or the truth, but I have just heard that in Chicago one day the municipality displayed 500 houses requiring long drawn-out and always expensive repairs. But it had no money. Then it placed an announcement in newspapers saying that each of these houses would be sold for a dollar, for 1 dollar! In 2 days all the 500 houses were bought up. One person embarked on repairs and another demolished a structure and began to build a new house on this land. The municipality could not afford any of these operations. A truly big gesture! I would act in the same way with many of our houses. We have houses which are unworthy not only of repairs, but even of simple demolition—all this will cost much more than their price.

[Correspondent] What could you say about badly-off people, who face an acute housing problem, but who have no money for the first instalment? We also have homeless people...

[Popov] I will say that there are no violations of social justice here. First, the purchase of an apartment is a voluntary matter. No one forces anyone. Second, conversely, this is another and quite a sure chance to obtain housing, because, as I have already said, the funds from the sale of apartments will be allocated for new housing construction.

[Correspondent] Thank you. No matter how many questions I asked you, I think that readers will ask new ones.

## FUELS

UDC 622.276.6

### Nuclear Explosions Aid Oil Recovery Work

904E0007A Moscow NEFTYANOYE KHOZYAYSTVO  
in Russian No 9, Sep 89 pp 42-43

[Article by V.A. Sorokin: "Nuclear Stimulation for the Extraction of Crude That Is Difficult to Extract and of Residual Oil Reserves"]

[Text] Preservation of the level of oil recovery that has been achieved in the old oil-producing regions and in the country as a whole is directly related to the use of more effective methods of intensifying oilfield development, especially methods that stimulate poorly permeable reservoirs and inhomogeneous carbonate formations. A practical solution to this problem will enable large residual oil reserves to be put into development.

Despite the efforts of scientists and production workers of the whole world, both in the USSR and abroad, it still has not been possible to extract from formations more than half of the oil they contain, and even less (10-30 percent) from formations with poorly permeable reservoirs.

As an analysis of oilfield development indicates, completeness of the extraction of oil from the formations depends primarily upon the geological structure. All existing technologies and methods for intensifying development are based either on maintaining the formation's energy resource (injection of water and gas) or on an artificial change of the oil's physical properties (thermal or physical-chemistry stimulation), or on a combination of the two. However, the filtration properties of the oil-containing rocks remains unchanged by any of the indicated methods.

A basically new method for stimulating the formation that improves its filtration properties over a great area and permits additional amounts of the productive formation to be brought into development is nuclear (underground nuclear explosion) stimulation. In the USSR and the U.S., the possibilities of using nuclear explosions in various branches of industry, including mining, are being widely studied. The first nuclear explosions for intensifying the development of oilfields were made in the USSR in 1965, and, for developing gas deposits, in the U.S. in 1968. They indicated the basic potential for using underground nuclear explosions at existing built-up oilfield facilities without inflicting harm on people or industrial facilities and have enabled industrial-test work to be performed at other fields.

According to the data of the literature, operations conducted in the U.S. in 1968-1973 at four gas fields about doubled the recoverable gas reserves at fields with reservoirs that were poorly permeable and had not been developed previously because gas recovery was unprofitable by ordinary methods.

The use of underground nuclear explosions at USSR oilfields also completely confirmed the effectiveness of

this stimulation, especially at poorly permeable and carbonate reservoirs. Thus, as a result of nuclear stimulation at a field with a reef mass, a zone of improved conductivity was formed and well productivity was increased significantly in an area in which 80 percent of the residual reserves were concentrated.

The effect of the experiment on other basic oilfield development indicators was established on the basis of a comparative analysis:

- the rate of natural drop in oil recovery was slowed almost 3-fold during more than 8 years of operation of the deposit after the explosion;
- the current gas-oil ratio for the deposit as a whole was greatly reduced (from 500 to 78.5 m<sup>3</sup>/ton) because of the change in phase permeabilities and increase in the vertical permeability of the productive strata;
- the rate of drop of formation pressure was slowed; and
- specific oil withdrawal was increased during a reduction of formation pressure by 0.1 MPa.

An increase of the final oil-withdrawal factor of no less than 1.4-fold is expected for this field, which will enable an additional 1 million tons of crude to be obtained from the deposit.

Since there were no changes of any kind in the procedures for developing the deposit during the period examined after the nuclear stimulation, the cited improvements in development indicators should be explained by the effect of additional fracturing of the reservoir as a result of the explosions.

Similar results were obtained also at other fields where nuclear stimulation was performed. A still greater benefit can be achieved by using subsurface nuclear explosions in combination with other methods of stimulation at the oil deposit, particularly with the injection of heat carriers and gases, the organization of in situ combustion, and so on. However, designs for comprehensive stimulation that have been drawn up are being realized very slowly. The work that has been done has enabled valuable scientific and engineering information to be obtained about the nature of nuclear stimulation on carbonate reservoirs, sands, aleurites and gritstone and on the hydrocarbons that they contain, as well as on oilfield structures and utilities and on communities. The possibility for designing the results of the explosions' stimulation and of establishing the most optimal technological schemes for the conduct of the oilfield operations has been shown.

Thus, nuclear stimulation opens up for oilfield workers basically new paths for intensifying the development of deposits with poorly permeable reservoirs that contain large total reserves.

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## ELECTRIC POWER GENERATION

Long-Range Development of Electric Power  
Outlined18220214 *ENERGETIK in Russian* No 9 Sep 89 pp 3-5

[Article by Yu.N. Kogan, doctor of Economic Sciences, ENIN [Power Engineering Institute imeni G.M. Krzhizhanovskiy]: "Electrification of the USSR. Perspectives and Features"]

[Text] World experience attests to the growing importance of electrification in social-economic progress. The yearly generation of electric power throughout the world doubled from 1970 to 1987 and reached 10,477 billion kw-hrs. Our country's electric power production rose at more accelerated rates and increased during these years by a factor of 2.25, reaching 1665 billion kw-hrs a year, and is 5880 kw-hrs per capita.

The transition of the USSR economic system to priority solution of social problems and production intensification, while maintaining high developmental rates for the national economy, dictates an objective need for further development of the country's electrification. This is an important factor in increasing the effectiveness of economic growth and the quality of life.

Modern electrotechnology will help to improve the standards of work and everyday life for people, as well as the environment. Electrification is related to the acceleration of scientific-technical progress; an increase in labor productivity, including an increase through intensive electromechanization of manual labor; a rise in product quality, in particular to expand its output on the world market.

Conformities to principle in the development of electrification, common to developed countries, are characteristic of our country: the general nature, encompassing all production spheres of material well-being and services; the growth of the share of electric power in the amount of energy consumed and production resources as a whole;

diversification of electrotechnology and processes using electric power; an increase in the proportion of industrial consumption of electric power in its total consumption for production needs; the outstripping growth of nonproductive consumption of electric power.

At the same time, the Soviet Union is solving a number of specific problems, determining the role of electrification in the national economy.

1. Surmounting the lagging behind in the social-economic sphere, created in the stagnant years: ensuring rapid and efficient structural-technological perestroika of the national economy while implementing, above all, radical measures to raise the standard of living of the workers. Therefore, electrification priorities are objectively expanded.

Along with the further development of modern electrotechnology, ensuring an increase in the production of advanced and, as a rule, electricity-intensive materials, as well as those directed toward crowding out unproductive manual labor, widescale use should be made of electric power, particularly to automate production, including sectors providing reequipment of production (machine building), improving the population's supply of food, light industry products and durable goods. Electrotechnology should be introduced at outstripping rates in everyday life and at population service enterprises.

2. Increasing the efficiency of using electric power. Electric power engineering already occupies a considerable portion of the balance of investments in the country (15 percent of all capital investments in USSR industry), and a further substantial increase in this proportion under the conditions of the investment deficit is made exceedingly difficult.

Electric power in the USSR is not used efficiently enough and considerable overconsumption of it is observed. Table 1 shows the specific consumption of electric power to produce certain goods in our country, as well as in the United States and Japan.

Table 1

Product	Specific electric power consumption, kw-hrs/t		
	USSR	United States	Japan
Aluminum	17,200	16,000	15,000
Black copper	1240	1000	260
Yellow phosphorus	16,266	12,500	—
Ammonia	700	70-80	50-70
Electric (furnace) steel	723	480-620	550
Ferrosilicon 75%	9750	—	8600
Silicomanganese	3900	—	3350
Carbon ferrochrome	3590	—	3200
Low-carbon ferrochrome	2905	—	2550

The electricity-intensiveness of USSR material production is higher by a factor of 1.6 than the United States, including a factor of 1.4 for industry. If the electricity-intensiveness of material production were the same as in the United States, the electric power generation in our country in 1987, for example, would have been only 1160-1200 billion kw-hrs, as against the actual amount of 1665.

In the next few years, the growth trend in the electricity-intensiveness of our country's national economy should be established, and then the task can be set of reducing this indicator by 1.0-1.5 percent a year. If this problem can be completely solved, USSR consumption of electric power, to double the national income in 15-20 years, will increase by a factor of only 1.5.

Future directions, scales and rates of electrification development are to a substantial extent determined by our country's natural-geographic and historical features, including its large territory, relatively severe climate and conditions of electric power development.

A substantial correction in the future cost values of electric power is important. AES are to become more expensive, because of increasing their safety, including creation of a new generation reactor. The cost of electric power at TES is increasing, as the result of the limited possibilities of using gas and mazut in them and the increase in the proportion of low-quality coals. Because of this, environmental protection measures are increasing at TES (up to 20-30 percent of the capital investments in their construction).

All of this can lead, with an overall increase in the cost of primary energy resources, to a rise in the cost of electric power relative to the cost of other energy carriers. A few years ago it was felt that the cost of 1 gcal with respect to closing expenditures in electric power would be higher than 1 gcal in gas, for example, by a factor of 2.5. This correlation is now evaluated as approximately a factor of 3.

Because of this, the range of electrotechnology is somewhat narrowing, and when it is used, the increased expense of energy carriers is paid back by conserving other production resources or social advantages of electric power.

These general characteristics of the problems and conditions of electrification development are manifested in different ways in individual spheres of the national economy. The priority of social goals dictates the need for accelerated rates of electrification development in sectors directly participating in solving social problems.

The basic directions for electrification in everyday life are a 1.5-2-fold rise in the level of lighting intensity, a sharp increase in the assortment of electrical household appliances and provision of fixed electric hotplates for the population.

Sensible norms must be achieved for the population's provision with basic electrical household appliances

(television sets and radios, 120-160 units, washing machines, 85-90 units, refrigerators 100-120 units per 100 families, etc.).

In addition, ironing machines and dishwashers and all purpose kitchen units will be used, and in rural areas—freezers, clothes dryers and garbage disposals. The use of electrical household appliances for domestic purposes makes work in the home easier and reduces it by 250-300 hours a year per family.

Videotape recorders and video accessories, in the production of which the USSR lags very seriously behind other countries, hold a special place among electrical appliances for cultural purposes.

For the next 15-20 years, the problem will be posed of providing the newly developed available housing (especially urban) with electrical household appliances, improving the hygienic condition of the housing and high-quality heat processing for food. With respect to saturating available housing with electric stoves (6%), the USSR is presently lagging behind other countries by a factor of 3-5 and more.

At the same time, the high concentration of the population, particularly in the cities, and the predominance of dense multi-story structures combined with the severe climate over most of the country's territory, makes it efficient to develop further central heating for the available housing and service spheres through boiler houses and TETs and in the future, possibly, deep entrance of subtransmission natural gas lines. In contrast to the United States and the countries of Western Europe, the USSR has no prospect of widescale use of electric power in heat supply processes.

In the future our country will make wide use only of household storage water heaters in certain rural areas in the country. As for stationary units for electric heating (thermal pumps, electric storage heaters), they can be allowed into the commercial network as comfort appliances and sold to the population, allowing for the specific conditions of power supply in certain specific areas.

Electrification at service enterprises will be developed at an outstripping rate. There should be considerable expansion of the use of electrical equipment and mechanisms to reduce manual labor at commercial enterprises, special electrical equipment to improve the quality of diagnostics, treatment and rehabilitation of the sick in public health institutions, to instruct at child care centers, schools and other educational institutions, etc.

Considerable rates of electrification should take place in agriculture. Here electric power can be widely used in the system of third and subsequent generations of machinery, developed to reduce manual labor and increase its livestock breeding productivity. The country's severe climate, which dictates the need for artificial heating of livestock breeding facilities, creates the prerequisite for the use of electrotechnology. It can create a microclimate and regulated system of heating which will

not only cut down on labor input but also provide a great technological effect (5-10% reduction in murrain in calves, 10-15% increase in weight with a 15-20% reduction in fodder consumption).

Great electric power expenditures will be involved in the technology for the preparation of effective fodders (drying grass, hay, electrochemical processing of straw), as well as in ensuring the preservation of agricultural products (active ventilation, cooling, etc.).

A transition to stationary electric threshing of grain may become an effective new direction of electrification. It will make it possible to harvest grain separately and reduce expensive combine harvesting that destroys the soil. The development of individual farms and lease contracting will involve widescale introduction of microagricultural electrical equipment for various purposes (mini-plows, fodder cutters, juice extractors, separators, pumps, etc.).

In the food industry, electrification is related to the development of automated production, reducing to a minimum human contact with food products and increasing labor productivity. At the same time, electro-technology should be widely used to process products (disinfecting) and ensure their long storage life (irradiation, refrigeration equipment, drying, sublimation).

On the whole, the relative proportion of the sector called upon directly to solve social problems, in the overall consumption of electric power, according to the estimate of the ENIN imeni G. M. Krzhizhanovskiy, can increase

from 25 to 30-32 percent, including the electric energy consumption in everyday life and the service sphere—from 15 to 20-22 percent. At the same time, these figures do not include the electric energy consumption to produce consumer goods in machine building, the chemical industry and other sectors.

In the sectors of the heavy extracting and processing industry, one of the main tasks of electrotechnology is to reduce the manual labor input, particularly sizable in machine building.

As in other sectors of the economy, serious lagging behind will have to be overcome and the proportion of those engaged in manual labor reduced from 40-50 percent to the level of 15-25 percent, optimal for the next 15-20 years.

Changing the structure of the building materials is an important task. Without it, the tasks of reequipping the national economy and the requirements of increasing durable goods production for the population (motor vehicles and other means of transport, electrical household and electronic equipment), and of expanding the material base of further development of housing construction cannot be fulfilled.

Our country should overcome today's considerable lagging behind the developed countries with respect to saturating the national economy with advanced materials, the output volume of which is given in Table 2.

Table 2

Material	Specific indicator of material production in 1987, in kg			
	USSR	United States	FRG	Japan
Electric (furnace) steel per ton of steel	134	380	170	300
Plastics per ton of steel	33	315	236	101
Chemical wires and fibers per 1000 m <sup>2</sup> of fabrics (woolen, cotton and silk)	142	295	640	342

The production of electric steel, synthetic iron, chemical fibers and plastic should increase several-fold. Electric power consumption for these purposes will have to increase at higher rates than for industry as a whole. Simultaneously, in contrast to other industrially developed countries, the USSR must sustain, for at least another 2-3 five-year plans, the high levels achieved in production of traditional building materials (iron, steel, rolled metal, cement, etc.), which requires the consumption of a large amount of electric power.

The tasks of raising product quality dictate the need to expand the use of electric power not only to produce, but also to process materials and items. A classic example is the machine building industry, with its variety of electro-technology, including highly electricity-intensive and highly productive ones: plasma, quantum, ultrasonic, etc.

There must be increased utilization of electric power in machine building for the processes of smelting and

heating. The overall consumption of electric power due to the growth of the coefficient of metal use should not only not increase, but, allowing for metallurgical production, should even be reduced by 30-50 percent.

The structure of measures for the electrification of transport will change substantially in the future. The forthcoming stabilization of extraction volumes and, consequently, of the pumping of petroleum and petroleum products, will result in no increase in the consumption of electric power for the pumping.

Under the conditions of the outstripping growth in the cost of electric power, a further expansion of the use of electric drive for the compressor stations of main gas pipelines may prove to be inefficient, particularly if the potential rise in the efficiency of gas compressor units (from 25-27 to 33-35%) is realized. In this case, the main direction for electrification of transport remains electric traction on railroads.

USSR railroads occupy a special place in the overall freight and passenger turnover of transport for general use. In 1987 their proportion was respectively 57.6 and 37.1 as against 29.5 and 0.4 percent in the United States, 2.1 and 5.5 percent in Great Britain, 23 and 6.6 percent in the FRG, and 0.6 and 35.1 percent in Japan. This dictated the high load of the electrified railroad network in our country. Constituting 3 percent of the extent of all the railroads in the world, it provides  $\frac{1}{4}$  of their overall freight turnover. Electrifying traction is becoming exceptionally effective, making it possible to increase the throughput of the route by a factor of 1.3-1.5 and over. It would be economically effective to bring the proportion of railroad freight turnover to 80-85 percent, as opposed to 60 percent in 1984. At the same time, the extent of the electrified network will increase to 80-90,000 km as against 52,000 km in 1986.

The high concentration of the USSR population in large cities, with the low level of the country's saturation with private motor vehicles, dictates the need for further development of ecologically pure and highly productive electrified transport, to which 40 percent of intracity passenger transport now falls.

Intensifying electrification of the USSR national economy is a highly effective process. The indicators for the efficiency of the basic sectors of the national economy with respect to the group of modern technology studied is shown in Table 3. According to the evaluation of the ENIN imeni G.M. Krzhizhanovskiy, the overall effect from electrification on the basis of this group may constitute approximately 60 billion rubles a year by the year 2005. Calculated per ruble of expenditure for electrification, this effect will be about 1 ruble, and calculated for each additionally used kilowatt-hour—about 10 kopecks.

Table 3

Sector	Specific indicator of economic effectiveness of intensifying electrification, in rubles/ruble of expenditure (kopecks/kw-hrs)	Overall effect, in billion rubles
Industry	0.85 (11.7)	26.5
Agriculture	1.05 (15.5)	17.9
Transport	0.30 (5.4)	1.7
Everyday and service sphere	5.60 (11.6)	15.2

The effect of electrification is determined by the saving of various production resources: "mental and physical" labor, raw material and materials, high-quality, primarily petroleum fuel, gas and coke. For example, an overall increase in labor productivity of at least 40 percent can be obtained by increasing the energy used per worker in material production in the next 15-20 years.

The effect of intensifying electrification does not always lend itself to monetary evaluation, as for example, improving labor conditions through introducing modern

electrotechnology, reducing harmful emissions into the atmosphere, particularly, as related to doing away with burning organic fuel in places with an accumulation of population and with the distribution of special nature conservation technology to purify waste gases and sewage waters. The effect from using electrical household appliances for cultural purposes is not subject to calculation and has independent social significance.

The world energy crises of 1972 and 1980, which caused an unprecedented and still far from compensated rise in prices for power resources, as well as ecological demands, brought about the great interest of the developed countries in problems of energy conservation. Considerable progress has been achieved in this area in a short period. The structural shifts in national production and the reduction of its material-intensiveness stemming from the fact that the industrially developed countries emerged to the post-industrial development stage, affected the energy- and electricity-intensiveness of the national economy of these countries.

Although our country still lags behind a number of industrially developed states with respect to the structure of the economy, the development of electrification here will be accompanied by major structural-technological measures, entailing the conservation of electric power. The coming increase in demand for it may be cut by approximately  $\frac{1}{3}$  through these measures.

The basic directions for electricity conservation are further enumerated:

A further growth in industrial machine building output (electricity-intensiveness of which, calculated per ruble, is half that of the average industrial) in overall production, and increased rates of development of group B sectors (its electricity-intensiveness is even lower);

A reduction in the material-intensiveness of national production through changing its internal structure, as well as in the structures and qualities of the building materials. At present, the high metal-intensiveness of the USSR national economy (2.5-fold higher than in the United States) is leading to the overexpenditure of about 200 billion kw-hrs per year.

The reduction in electricity-intensiveness, however, will not occur in proportion to the drop in material-intensiveness of the national economy, and will be implemented at half the speed, because of the great expenditure of electric power entailed in the growth of production of advanced electricity-intensive materials and additional expenditures of electric power to raise the quality of the materials.

Expanding the use of secondary raw material is an important contribution to conserving electric power and other production resources. For example, the use of 1 ton of scrap ferrous metals ensures the saving of 200 kw-hrs, and 1 ton of aluminum scrap—about 16,000 kw-hrs;

Raising the energy efficiency of electrotechnology, including a direct technical improvement in consumer electrical equipment, and improving its use. For example, there is a possibility of reducing the specific consumption of electric power in aluminum production by 5-10 percent through increasing the density of the current, using burnt anodes, etc., and in electric steel production—a 20-25 percent reduction through introducing out-of-furnace finalizing, etc.

Carrying out these measures requires a transition to economic methods of controlling the consumption of electric energy. It is particularly necessary to do away with direct norm-setting for the consumption of electric power in producing goods and services, to make the transition to stimulating its conservation by means of a system of rates for electric power, differentiated by sectors, in consideration of the potential for energy

conservation, and to introduce a system of preferential loans for energy-saving measures. Direct norm-setting should exist only in the form of the energy characteristics periodically approved for compulsory adherence in GOST for electricity-consuming equipment produced for various purposes.

The trend of energy conservation will not go against the outstripping consumption of electric power as compared with other production resources. As a result, a substantial increase in the coefficient of electrification should be expected (proportion of electric power in the overall quantity of energy consumed) of the USSR national economy. In the next 15-20 years it can be increased to 15-16 percent as compared to the present 10-11 percent.

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## Gossnab Officials Discuss New Wage Reforms

18280292 Moscow

*MATERIALNO-TEKHNICHESKOYE*

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[Interview with V. Rakoti, deputy chief of the USSR Gossnab Economic Department; Ye. Yefremochkin, chief of a subdepartment; and chief specialists G. Korenevich and V. Ilin, by unnamed MATERIALNO-TEKHNICHESKOYE SNABZHENIYE correspondent: "The New Wage Conditions"; individual speakers responding to correspondent are not identified in text]

[Text] The shift to the new wage conditions has been under way since July last year at enterprises and in organizations of the USSR Gossnab. This major step affects the interests of practically all workers in our sector. The new wage rates and salaries have been called upon to stimulate the activity of labor collectives in restructuring the state system for material and technical supply of the national economy, the development of wholesale trade, and other forms of servicing consumers.

The Economic Department of the USSR Gossnab has reviewed the work that has been carried out and has determined the next tasks to complete the shift of associations and enterprises to the new wage conditions. In particular, V. Rakoti, deputy chief of the department; Ye. Yefremochkin, chief of a subdepartment; and chief specialists G. Korenevich and V. Ilin have taken part in their development. Our correspondent has asked them to respond to questions of interest to the journal's readers.

[Correspondent] It is common knowledge that every important measure requires careful preparation and the appropriate normative documents before it is carried out. What was done in this case?

[Answer] It should be noted first of all that the introduction of new wage conditions is taking place during a period in which the material and technical supply system is being qualitatively restructured. As a result of the shift from multiple-oblast to single-oblast main territorial administrations, 78 new local organs have been established. All of them (both the old and the new ones) have been changed into basic cost accounting components of the USSR Gossnab, and application of the Law of the USSR on the State Enterprise (Association) has been extended to them. Further, since 1 January 1989, the sector as a whole has been shifted to full cost accounting and self-financing. The methods of supplying enterprises and organizations are being radically restructured at the same time. A shift is under way from basically centralized distribution of resources to wholesale trade in output for industrial and technical purposes. Naturally, all this could not help but have an effect on the periods for introducing the new rates and salaries and to a certain extent, on the efficiency of the measure itself, which could be higher under different conditions.

There is no question that introduction of the innovation was preceded by specific organizational work. Taking

into account the experience in the transition of industrial enterprises in the system, the USSR Gossnab provided for measures to forestall unjustified extension of the periods for the shift to the new wage conditions. The territorial organs were charged with determining the base enterprises in wholesale trade, at which the rates and salaries should have been increased last year. In order to provide economic incentive in the activity of staff employees, it was established that the new work conditions would be introduced only after all the associations and enterprises within their jurisdiction are working under these conditions. The Central Commission of the USSR Gossnab is monitoring adherence to this rule.

Taking into account the establishment of new territorial organs, as well as a thorough rejuvenation of the personnel in the local organs which existed previously, normative documents were assigned to establish the procedure for introducing the new wage conditions. They include the responses of the USSR Goskomtrud [State Committee for Labor and Social Problems] to questions arising in implementing provisions of the decree of the CPSU Central Committee, the USSR Council of Ministers, and the AUCCTU of 17 September 1986 "On improvement in the organization of wages and the introduction of new wage rates and salaries for workers in the production sectors of the national economy." Five interconnected conferences with the managers of the gossnabs of union republics and main territorial administrations were held to explain the documents that were distributed last year.

All the preparatory work in the territorial organs, associations and enterprises is under the direction of especially formed commissions which include the representatives of different services. All the organizational activity of the commissions is being carried out under conditions of broad glasnost with the involvement of all categories of working people.

The effectiveness of improvement in wages depends to a large extent on the active participation in this work by the great bulk of those working at enterprises and in associations. This is why attention has been intensified everywhere in studying their opinions, based on sociological polls. In conformity with an order from the USSR Gossnab, they are conducted both before the new wage rates and salaries are introduced and after the transition to the new wage conditions. In the first case, the completeness and quality of preparatory steps are determined and in the second case, the results that were achieved.

[Correspondent] The Congress of People's Deputies and the first session of the USSR Supreme Soviet devoted considerable attention to the need for financial normalization of the economy and reinforcing the circulation of money in the country. In this connection, the implementation of centralized steps to raise the people's living standard in the 1989-1990 period has been suspended or moved to later dates. But a major official act such as



increasing wage rates and salaries for workers in the field of material and technical supply requires considerable funds. Where are they being taken from?

[Answer] The shift to new wage conditions is not linked in any way with an increase in the state subsidy. Under the mentioned decree of the CPSU Central Committee, USSR Council of Ministers, and the AUCCTU, everything is implemented through the internal resources of associations and enterprises. Searching for them is an important task of the preparatory work, which is being resolved successfully, as experience shows.

An important role has been played here first of all by the decision adopted by the USSR Gosplan to shift our system to a standardized method of forming the wage fund instead of the absolute fund that was used previously, with a size that did not depend on the results of labor collectives' production activity. When the multiple-oblast territorial organs were broken up and single-oblast organs were created instead, a single standard was established for forming the wage fund—14 kopecks per ruble of income. This ruled out an excessive increase in it or unjustified reduction in connection with reorganization, and at the same time it provided the conditions for an equal increase in wages when the end results are equal. As far as the new structural subunits—the commercial centers for providing intermediary and information services—are concerned, the USSR Gosplan has authorized that a leveling wage standard be applied separately for them.

It must be stated that many enterprises have been making wise use of the opportunities given to them to increase income through the development of wholesale trade; production, commercial, and information services for consumers; expanding deliveries of products through direct and long-term ties, and by sales with guaranteed supply in complete sets... And today, at the base enterprises which were the first to shift to the new wage system, the sums acquired through an increase in the wage fund as the result of the rise in income amount to 39.6 percent of the funds which go toward providing higher wage rates and salaries.

Another important source is the reduction in the work force. It is being achieved in two ways: by abolishing the vacant positions and basically by carrying out organizational and technical measures to fundamentally change the technology in freight handling and increase labor productivity.

In the course of the campaign to shift enterprises to the new wage conditions particular attention is being given to reducing the number of management personnel. The share of the wage fund for supervisors, specialists and employees is being strictly monitored, and an increase in it is not permitted (but it is also reduced in certain cases) in the common fund as the result of the introduction of new salaries. It can be said that not one specialist has received a wage increase at a worker's expense. At the base enterprises, for example, 1,222 persons have been

released, including 900 managers, specialists, and employees. The number of management personnel has been reduced by an average of 14 percent in this way. The reduction is even greater in individual territorial organs: by 15.7 percent at wholesale trade enterprises of the Voronezhglavsnab and Tyumenglavsnab [Voronezh and Tyumen Material and Technical Supply Main Administrations], by 16.4 percent in enterprises of the Novosibirskglavsnab, by 16.8 percent at enterprises of the Chuvashglavsnab, and by 21.9 percent at enterprises of the Komiglavsnab.

Finally, small amounts of the wage fund, acquired from the enterprises of other ministries and departments in connection with their acceptance for inclusion in the system of guaranteed all-round supply, are being allocated for an increase in the rates and salaries. Their share of the overall sum of funds required amounts to 6.8 percent at present.

Naturally, the role of the sources cited is not identical in the different territorial organs. At enterprises of the Novosibirskglavsnab and the Irkutskglavsnab, more than half of the additional expenses for wages is covered by the increase in incomes, and in the Komiglavsnab, Permglavsnab, Stavropolglavsnab, Tyumenglavsnab, and Chuvashglavsnab, 70 to 90 percent has been acquired as the result of manpower reductions. Individual territorial main administrations have acquired considerable funds from other sectors and have used them to increase rates and salaries.

All the same, it must be stressed that the basic reserves lie in an increase in the incomes of associations and enterprises.

[Correspondent] Can't you show with specific examples how the introduction of new wage rates and salaries has affected the indicators of enterprises' economic and social development?

[Answer] In the most positive way. Labor discipline has improved everywhere, the quality of organization has become better, and the efficiency of each worker is higher. And as a result, there is improvement in all the indicators of collectives' production activity. It is sufficient to cite this example. In 1988, incomes for the USSR Gosplan as a whole dropped by 0.2 percent compared with the preceding year, but at enterprises which had been shifted to the new work conditions they rose by an average 8.9 percent, including by 3.8 percent through additional measures.

In the social area, it must be said that all members of labor collectives have received a sizable wage increment. It is practically equivalent in size to the increment for the entire preceding five-year plan. At base enterprises, the average wage for a worker rose from 180 to 203 rubles and the wage for a specialist and employee rose from 174 to 205 rubles.

As stipulated by the new work conditions, the highest increase in salaries went to supervisory employees, chiefs

of departments, and specialists. This makes it possible to staff enterprises with personnel who have the skill, production experience, and businesslike qualities to best meet the high requirements set forth in connection with fundamental restructuring of the material and technical supply system. The increase in salaries also contributes to greater prestige for engineering work and attracts specialists who are higher education graduates. As an example, the proportion of them has increased by 17 percent at enterprises of the Ukrainian SSR Gosstab and by 19.8 percent at enterprises of the Kemerovgoststab.

At the same time, analysis of staffing schedules has shown that the limited reserves in wage fund savings have not made it possible for enterprises to make use of all the opportunities incorporated in the new salary system. For many specialists they were set at minimum or medium amounts. The practice of additional payment for holding two jobs and bonuses for high achievements in work has been discontinued.

The shift from centralized distribution of resources to wholesale trade has required a breakup of the previous organizational structure of management as applied to the specific features of different territorial organs. And here improvement in the salary system was authorized by the USSR Goskomtrud for the first time. The lack of strict regulation for the referral of employees to the different categories of specialists and especially the enlarged classification of department heads in accordance with the sizes of their salaries make it possible for managers to resolve the problems of restructuring the management efficiently based on the right to approve a staffing schedule independently and as required. However, there are no grounds at present to draw the conclusion that they are fully realizing their potential to build a more efficient system to provide work incentive, especially for specialists, by improving the structure of management and staffing schedules and by efficient distribution of responsibilities and the use of progressive forms of remuneration.

I would like to say a few more words about supervisory employees. An important role belongs to the category of the enterprise in the wage that is paid. The categories approved by the USSR Goskomtrud rule out unnecessary differentiation in accordance with the types of activity and provide a single system for evaluating work at the various enterprises. Only commercial centers have been singled out as the new type of organizations which have emerged with the development of wholesale trade. Such an approach to assigning the category of enterprises has proved itself, as practice has shown.

Selective analysis attests to the fact that the groups paid as managers have been reduced to one or two at more than half of the wholesale trade enterprises as the result of tougher indicators for assigning categories. In individual cases, this has taken place in connection with a reduction of the work volume resulting from the division of territorial organs and their enterprises.

For the first time, the proportion of wholesale trade in overall output sales is taken into account in assigning categories to enterprises; depending on the amount, a group is reduced or increased. Thus, out of 78 enterprises examined, it was set for one higher at 12.

[Correspondent] It was mentioned at the start of the discussion that steps were taken in the preparatory period to improve the normative base. What did this work produce?

[Answer] Briefly, the output norms for freight handling operations were increased by an average 21 percent at the enterprises that were shifted. As a result, the level of planned targets fulfilled was 111 percent, compared with 135 percent before the shift to the new wage conditions. What do these figures show? That the old norms were understated and that new intersectorial and technically justified ones had to be introduced, and this has been put into practice.

At present, the proportion of piece-workers working in accordance with technically justified norms has reached 96.3 percent, which is 3 points higher than the previous level. In the Tulametallpromtorg [presumably: Tula association for wholesale metal products sales] this indicator is even higher—97.8 percent. The proportion of workers paid on a time rate, whose work is regulated by norms, has also increased. For example, in the Rostovkombiromtorg in the Rostov Territorial Main Administration, their number was more than doubled and reached 45.3 percent after the shift to the new wage conditions. This made it possible to reduce the work force by 9.6 percent and to save 7.5 percent of the wage fund.

It should be noted in particular that under the new conditions the proportion of piece-workers has increased; they are paid in accordance with increased piece-work rates in connection with the introduction of technically justified norms. At the same time, workers paid on a time rate are paid less for holding two jobs (positions) and for extending the areas of service. An evaluation of actual working conditions has also been made in order to justify the amount of additional payment for work in hazardous production areas. As a rule, the number of persons employed in such work is being decreased, but if the number remains at the previous level, the amount of the additional payments will be reduced. At the Arkhangelsk Wholesale Trade Enterprise, as an example, before the new wage conditions were introduced, 40 persons received an additional 12 percent of the wage rate, but afterward only 16 persons received an additional 4 percent.

Under no circumstances should we have any delusions about the results achieved, of course. Norms become outdated rapidly, especially with the accelerated mechanization of warehousing processes and improvement in freight handling technology. For this reason, territorial organs must systematically monitor the status of norm setting and review the existing norms in a timely manner, and not permit them to rise or decline without

justification. Scientific organizations and the Tsentrorgtrud of the USSR Gossnab—the head organization for setting work norms—have to be involved in this.

[Correspondent] Apart from the new wage rates and salaries, is any kind of compensation being provided for work by employees in enterprises and organizations in our system?

[Answer] Absolutely. Since 1 July 1988, a new procedure has been introduced for awarding bonuses for basic results in economic activity and in accordance with special incentive systems. In this connection, a Decree on Payment of Bonuses has been approved and recommendations have been drafted for decrees on the payment of bonuses to specialists in structural subunits and workers.

The new system is aimed at stimulating the quality indicators of labor collectives' activity. Half of the bonuses for basic results are paid for fulfilling contracts to deliver output, and the remainder are paid for increasing work efficiency and the volume of wholesale trade in capital goods and increasing profit (incomes). Single bonus payment norms have been established for the entire USSR Gossnab system for each percent (point) of increase. At the same time, four alternatives have been worked out for enterprises to calculate these norms, taking into account the specific tasks and conditions for providing work incentives.

Inasmuch as associations and enterprises received the right to approve their plans for production activity independently with the shift to full cost accounting and self-financing, it was acknowledged to be inadvisable in future fulfillment to consider the payment of bonuses to management employees a basic criterion. In order to interest labor collectives in more intensive plans and rule out the possibility that they may be understated and overfulfilled later on, the norms for payment of a bonus are reduced by half for an above-plan increase in this indicator. The same thing takes place if the plan adopted is lower than the scheduled figure, which provides a significant advantage in incentive for those who approve a plan at the level of scheduled figures or higher and cope with it successfully.

It should be emphasized that the procedure established for payment of bonuses is quite strict. It is sufficient to say that bonuses were awarded in accordance with the results of the third and fourth quarters of last year and the first quarter of 1989 to 86.1, 84.7 and 81.9 percent of the territorial organs, respectively. The average amount of the award to management employees in the periods cited was 8, 10.4 and 17.1 percent of their salaries, and the maximum amount was 26.7, 39.7 and 75 percent. The gap is explained by the effect of the indicator for contract fulfillment. If total adherence to them has not been provided for, the basic bonus is reduced by 75 percent.

Steps have been taken to abolish the previous practice in which the managers of territorial organs found themselves in the role of applicants for special bonuses which they earned. Indicators and amounts have been

approved within the limits of the maximum established (2.6 payments per year). It is planned to pay special bonuses twice yearly in accordance with the 6-month results. There is no need to coordinate this with departments of the USSR Gossnab central staff as before. And one more innovation: if the indicators for which bonuses have been established are not reached, the funds indicated cannot be used to pay bonuses for other indicators. A reserve of 0.6 of the rate has been earmarked for unforeseen results within the limits established.

In conclusion, I must say that perestroika of the system for payment of bonuses to workers, specialists, and employees is lagging behind the requirements of the reforms under way in our sector. The Gossnabs of the union republics and the territorial main administrations are not making sufficient use of the stimulating role of bonuses to increase the incentive of workers in developing wholesale trade, economizing resources, and increasing the efficiency of economic activity.

[Correspondent] How is improvement in the wage system coordinated with the development of collective forms of its organization?

[Answer] Very closely. At the material and technical supply enterprises that have been shifted over, the proportion of the brigade form of organizing workers' labor has risen by 8 percent to 65.6 percent. The number of brigades which have shifted to cost accounting has increased. The collective contract is being used more extensively; today it covers about 9,000 persons. An increasingly large number of combined brigades which include specialists have been shifting to this advanced method lately. At the end of last year, there were 386 such brigades, in which 1,200 specialists were employed.

The leasing agreement has begun to be introduced at enterprises handling wholesale and small-scale wholesale trade, secondary resources, and container repair and in commercial centers and other subunits. As of 1 June, 116 labor collectives in the field of material and technical supply, which include over 7,000 persons, were conducting their economic activity in accordance with this principle. In attaching considerable importance to development of this progressive form of organizing labor, the USSR Gossnab conducted a sectorial seminar in December 1988. Participants in it adopted recommendations on an intraorganizational leasing agreement.

In connection with the necessity for accelerated development of wholesale trade, a critical need has developed to actively provide incentive for specialists in commodity sectors to take part in it. This problem is being partly resolved by including these specialists in the combined production brigades. The possibility of shifting them to a piece-rate wage plus bonus system is being examined. It is planned to stimulate the search for and purchase of the types of resources in short supply with its help.

However, the use of collective forms of organizing labor to increase its efficiency lags behind the level reached by

other sectors of the national economy. Reinforcement of the role of cost accounting relationships and the end results in providing incentive should increase the attention given by practical workers to expansion of collective forms of organizing labor.

[Correspondent] How do the employees of associations and enterprises themselves regard the shift to the new wage rates and salaries?

[Answer] Democratic principles in production management require that the opinion of workers and ordinary specialists be known, both with respect to the quality of preparation and the results of introducing the new wage conditions. Analysis of the data in a poll by territorial organs at base enterprises showed the following. The majority of workers (93 percent of those responding to the questionnaire) have taken part in collective discussion of the question of introducing new rates and salaries. Satisfaction with the quality of the explanatory campaign was quite high (from 85 to 100 percent), and 85.4 percent of those polled have a clear idea of the new wage system.

At the same time, about one-fourth of the workers at individual base enterprises of the Orsktekhoptorg in the Orenburg Territorial Main Administration, the Pevk-tekhoptorg (the Magadanglavsna), and the Mariymetallooptorg did not take part in a collective discussion of the measures for shifting to the new wage conditions. More than 30 percent of those polled at these enterprises did not have a clear idea of them. Here and there, many did not see the opportunities to increase labor productivity (20.5 percent of the workers in the Kalininmetaloptorg, 21.2 percent of the workers in the Izhmetaloptorg, and 60 percent in the Korsakovmetaloptorg of the Sakhalinglavsna). The administration and trade union committees of these subunits did not attach sufficient importance to sociological work in the labor collectives. The central commission proposed that additional explanation of the new wage conditions be provided and that a decision on their introduction be made only after this.

Another poll was conducted at the enterprises and associations that had already been shifted to the new conditions. Materials from the inquiry show: 60 to 90 percent of the workers give a positive assessment of the increased rates and salaries, 58 to 80 percent of those polled mention the increase in the volume of work, and 67 to 100 percent mention the average monthly earnings.

Sociological research is something new but extremely necessary, since it is feedback from the workers and specialists to the managers. In our opinion, it should be utilized more extensively to mobilize the labor collectives to resolve the problems they face.

[Correspondent] Which territorial organs have already switched to the new wage conditions and when will they be introduced everywhere?

[Answer] This work has been completed by 24 territorial main administrations and four of the gossnabs in union republics (Kazakhstan, Lithuania, Latvia, and Estonia). In accordance with the schedules worked out by the labor collectives themselves, the new wage rates and salaries should be introduced for 135,700 persons by the end of the current five-year plan. But as experience shows, the process is proceeding much more rapidly. Last year, for example, it was assumed that 40,800 persons would be shifted, but 42,000 workers and employees actually made the transition to the new wage conditions. As of 1 July 1989, nearly 91,000 persons, or 73.3 percent of the total number of workers subject to the transition in the 1988-1989 period, had already received the increased rates and salaries.

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### **Uzbek Decree Bans Certain Types of Labor Activity**

904F0013A Moscow SELSKAYA PRAVDA in Russian  
5 Oct 89 p 2

[Ukase of the Uzbek SSR Supreme Soviet Presidium on the Banning of Some Kinds of Cooperative and Individual Labor Activity in the UzSSR, issued 27 September 1989]

[Text] The Uzbek SSR Supreme Soviet Presidium notes that the cooperative movement in the republic created the necessary preconditions for satisfying the needs and reducing the shortage of food, goods in public demand and industrial and technical production, works and services.

At the same time, reduction of the number of cooperatives for production of consumer goods and high rates of growth of wholesale-trade, intermediate trade, scientific-design and other cooperatives leads to transfer of currency from cash-in-kind to cash turnover and thereby leads to disarray of the entire credit and currency mechanism, inflationary processes and difficulties in paying salaries on time.

Resolutions concerning termination of specific kinds of cooperatives, engaged in forbidden activity, previously adopted by the government of the republic are not being implemented because of the absence of systematic control by the Council of Ministers of the republic, ministries and departments, especially the Ministry of Finances UzSSR, the Ministry of Trade UzSSR, specialized republican banks, the Karakalpak ASSR Council of Ministers, oblast executive committees and Tashkent Municipal Executive Committee, municipal and rayon executive committees, finance and credit and law enforcement agencies in some places.

There is an increase in the number of criminal offenses associated with speculation, misappropriation of state and cooperative property. Bribery and extortion are

deepening the interlocking of cooperatives and controlling agencies. Shady economics is being legalized, the standard of living is worsening and a background for social conflicts is being created.

The Uzbek SSR Supreme Soviet Presidium decrees:

1. Prohibition of the following forms of cooperative activity:

- manufacture of any kind of weapon, ammunition, explosives, pyrotechnic articles and also repair of any kind of weapon; teaching karate and other forms of combat, for which authorization of the appropriate agencies is required, and blasting operations;
- preparation and sale of narcotics, virulent and poisonous substances;
- sowing, cultivation and sale of crops containing narcotic, virulent and poisonous substances;
- brokerage activity, including middleman trade and purchase trade activity;
- public catering without having material resources for raising cattle and poultry and also preparation and sale of public catering products in private homes and buildings;
- production and sale of articles made from pelts of valuable trapped fur-bearing wild beasts which must be surrendered to the state, from pelts not carrying the state seal (stamp) and also from pelts of carnivores which cannot be kept by citizens;
- production and sale of wine and vodka and confectioner's articles;
- production of decorations and medals, seals and stamps;
- production of duplicating machines and copiers;
- provision of editorial and publishing services by organizations given the right to publish, including circulation of printed materials and issue of advertising and informational publications; printing forms: labels, menus, instructions and fair copies;
- publishing activity for output of works of science, literature and art. Lecturing;
- production of films and video material, organization of exchange, sale, release and public showing of films and video materials and also non-economic activity connected with this;
- circulation of motion pictures, film-strips and programs on videotapes and all activities connected with this;
- servicing technical apparatus of the united automatic communication system of the country and transmission devices of television and audio radio transmission and wire transmission;
- organization and presentation of concerts requiring an admission fee, discotheques, literary meetings, theatrical productions and entertainment;
- production, circulation and sale of phonograph records, magnetic tape recordings and other types of recordings and sale of printed products;
- organization and maintenance of gambling establishments and also organization of games of chance, taking bets on sports and other competitions and organization and operation of a lottery;
- any kind of operations with ready foreign currency. Acceptance by a committee and acquisition of goods belonging to foreigners. Assistance in organizing foreign tourism;
- production and use of registered trade marks and firm names of foreign and domestic enterprises and organizations without their permission;
- opening pawnshops;
- buying and selling goods (except consumer cooperation systems), produced by state enterprises or purchased abroad;
- preparation and restoration of icons, church-plate and of objects of religious symbolatry and attributes; production of candles (except decorative candles);
- production, purchase or sale of articles made from precious metals and gems or articles involving use of such materials (including manufacture of dental prostheses from precious metals);
- provision of the following medical assistance: treatment of oncological patients, treatment of persons with infectious diseases, including venereal diseases and infectious skin diseases, treatment of narcomania, treatment of persons with mental diseases who require hospitalization, hand distribution of conclusions concerning the state of mental health, examination and treatment of pregnant women, invasive methods of examination and treatment, surgical intervention, including abortions, performance of maternity periodic and preliminary examinations and examinations of citizens;
- production and sale of medicines;
- activity involving establishment of hygienic standards of chemical substances in environments;
- design, repair, assembly, set-up and technical servicing of automatic, fire-fighting devices; safety, fire and fire-protection signalling devices as well as technical servicing and repair of domestic radio-electronic apparatus, automatic control systems of technological processes and productions, radio-electronic apparatus of precision and automation equipment with numerically programmed control;

- design, drawing and designing and scientific research activity, development of programmed devices, performing design and estimation expertise and also organization of different consultative centers for carrying out economic reform, transfer to profit and loss accounting etc.;

- organization of general education schools.

2. Prohibition of persons engaged in individual labor activity from engaging in preparation and sale of food products, except bread baking and eastern sweets.

3. Supervisors of state administration agencies, state enterprises, organizations and institutions and workers of agencies controlling the activity of cooperatives cannot become a cooperative member nor work on labor contracts in them.

4. This Edict is being disseminated to cooperatives of other regions of the country which are operating in the UzSSR.

5. This Edict goes into effect on 1 October 1989.

The Council of Ministers of Karakalpak ASSR, oblast executive committees, the Tashkent Municipal Executive Committee and rayon executive committees, proceeding from this Edict, will ensure, by 1 January 1990, reregistration of cooperative staffs, and elimination and, if necessary, redirection of them to other kinds of activity. To create for this purpose on-site liquidation committees with participation of deputies of local Soviets and specialists of financial, banking and legal-protection agencies.

While performing this work, prohibit unjustified creation of multi-profile cooperatives not connected in the forms of their activities.

6. The Council of Ministers UzSSR will present decrees of the UzSSR government in accordance with this Edict.

*(Signed) Chairman of the UzSSR Supreme Soviet Presidium, M. Ibragimov*

*Secretary of the UzSSR Supreme Soviet Presidium, L. Bekkulbekova*

## ORGANIZATION, PLANNING, MANAGEMENT

### 'INTOMASH' Association of Engineers, Machinebuilders Created

904G0006A Moscow MEKHANIZATSIYA I  
AVTOMATIZATSIYA PROIZVODSTVA in Russian  
No 9, Sep 89 p 40

[Unattributed article: "INTOMASH—An Engineering Approach, Scientific Analysis, and an Engineering Solution"]

[Text] The Engineering Society of Machinebuilders (INTOMASH), the program purpose of which is a rise in the prestige and effectiveness of engineering activity—a prerequisite for speeding scientific and engineering progress, has been created under the Mashinostroyeniye Publishing House.

INTOMASH members are experimental machinebuilding engineers. The consultancy group of INTOMASH includes doctors of engineering sciences and distinguished figures of science and technology.

Features of INTOMASH's methodological approach are the integrated solution of practical machinebuilding tasks at a time of intensifying differentiation of scientific and engineering specialties, and a rise in the effectiveness of recommendations of an applied nature.

At present, narrow engineering specialization is characteristic for both higher special education and the structure of design and scientific organizations and of the enterprises' technical services. As a result, the reserves that must be found and used for solving complicated engineering problems arise at the interfaces of engineering specialties. This will enable engineering-activity effectiveness to rise sharply.

For industry, collaboration with INTOMASH creates possibilities for solving complicated problems, including those cases where the maintenance of in-house subunits is not expedient, and also for making one-time use of the experience of highly qualified specialists when problems arise which brook no delay.

INTOMASH's immediate task is the highly qualified and responsible solution of problems that have been posed, including those that arise at all stages of the creation and operation of machines: analysis, design, development of the technology, monitoring and formal acceptance, the testing of machines and their parts, analysis of problems that arise during operation, measures for increasing reliability, feasibility analysis, and so on. INTOMASH's recommendations, depending upon the complexity of the problem and the client's desires, can be short-term or long-term, as well as consecutive and phased.

The society's scientific and engineering activity is executed in the following ways:

—consultation (oral or written) at a consultation center granted at the request of organizations;

—expert review and technical findings at the request of organizations;

—execution of economic-contract work in accordance with the orders of industry;

—organization of the study of problems that are most important for machinebuilding, with coordination of the activity of organizations and various creative collectives, and with the involvement of both clients and operators (the society establishes the list of projects) in studying the problem; and

—the conduct of scientific and technical seminars and conferences with the invitation of leading specialists and, as participants, representatives of various organizations.

The society's consultation center operates twice per month (the first and third Thursdays) from 1700 to 1900 hours, at the offices of the journal VESTNIK MASHINOSTROYENIYE [Machinebuilding Herald], (Moscow, Prospekt Mira, 106).

The consultation center serves organization representatives free on the basis of official certifications.

For information on questions about INTOMASH's work, call 287-87-11 or 287-87-93 on workdays, from 0800 hours to 1630 hours.

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## PRODUCTION

UDC 658.52.011.56.012.3

### Effective Use of Specialized Production Units, FMS Described

904G0007A Moscow MEKHANIZATSIYA I  
AVTOMATIZATSIYA PROIZVODSTVA in Russian  
No 9, Sep 89 pp 27-29

[Article by Candidate of Engineering Sciences A.A. Panov: "Organizational and Engineering Principles for Creating Subject-Specialized Sections and Flexible Production Systems"]

[Text] In the contemporary era of a rapidly changing state of the market situation, flexible production systems (GPS's) capable of machining a large range of articles with an efficiency that approximates the cost of mass-production output must be created. Manufacturers are striving to convert from small-series production, which is marked by a high level of flexibility and cost, to flexible production systems, which possess an adequate level of flexibility and low prime production cost for the output produced.

Rational progress can be achieved by changing from the manufacture of articles on order to a subject-specialized system of production or to GPS's, which will enable GPS's to be introduced into production by phases.

The subject-specialized production system is a layout solution of the plant production area, at which equipment and cutting tools intended for the manufacture of like groups of parts are grouped.

Where there are subject-specialized sections, costs connected with transporting materials (blanks, parts, tooling, and so on) are reduced. A compilation of operational routings for a definite mix of parts with identical demands for mechanical machining reduces set-up time. As a result, production time, the amount of unfinished production, and transport costs are reduced. The storage of sets of cutting tools needed for parts manufacture simplifies the technology for transporting and monitoring them within the subject-specialized section.

Rise in the quality of the output produced is explained by the fact that the workers participate in the whole production process, not just in the mechanical machining operation. Where there are subject-specialized production systems, time for machining parts is reduced, since the subject-specialized sections can react rapidly to change in the output produced. Special attention must be paid to the problem of short-term calendar planning, which helps to smooth the arrival of materials at the subject-specialized section.

Automation of a subject-specialized production system where industrial robots (PR's) and roboticized manufacturing complexes (RTK's) are introduced provides effectiveness in the creation of flexible production systems. At present the cost of GPS's, the newness of the technology, and the problems connected with introducing them restrict their application. A perfecting of the technology and reduction of costs will expand the use of GPS's in small-series and medium-series production.

In GPS's, progressive technology is used for integrating the transportation of robotics materials and resources and for making industrial preparations for production, with control from computers at subject-specialized sections. In this case the GPS's can react rapidly to changes in product design. A GPS is controlled by a central computer, which provides control on a real-time scale, a balanced workload, and the logic for compiling technological routings, and a GPS includes an automated transporting system, an automated transport and retrieval system, and robotics resources, which provide it with flexibility and mobility and reduce the time needed for the replacement of cutting tooling and clamping, as well as for the loading and unloading of the machine tools.

At enterprises that produce complicated articles, industrial preparation for production requires a large amount of detailed information, including the layout of the subject-specialized section, the requirements for mechanical machining of each part, and the operating

potential of each machine tool. The qualitative data base for an automated system for technological preparation for production is defined by the level of specialized knowledge that the specialists have obtained over many years, during development of the technology for making parts.

Automated transport systems are more flexible and effective than conveyors and transport systems controlled by an operator. Computer control enables the automated transport system to be mated with the automated transport and retrieval system, in order to effect coordination of the flow of cutting tools, clamping arrangements, and the parts with the storage at the subject-specialized section. In a subject-specialized section, PR's transport the blanks, parts, cutting tools and clamps.

With the introduction of GPS's, methods for grouping technology, which provide a basis for organizing subject-specialized sections, are more effective. Grouping-technology methods are used when determining the mix of machined parts for which the subject-specialized section is created.

Grouping technology methods are being introduced by various paths. The basic method lies in the development of design-development documentation.

An analysis of operational routings that allow optimization of the operation and industrial processes that are involved in the production of each part is an effective method. Based on this data, one can determine the parts' constructional and technological similarity in machining and then divide them into groups.

This analysis can be carried out manually or with computer help, depending upon the available sources and the amount of information subjected to analysis.

Selection of the parts mix is the basis for implementing a subject-specialized production system that will enable the technological process for machining promising structure to be developed. The data that would confirm the advantages of the structure does not provide a methodology for analyzing operational routings. The data necessary for production and design are the coding and classification of parts.

This method is now higher in priority, with the introduction of grouping technology. Despite the fact that a standard coding systems exists, most specialists develop systems that are designed to satisfy the client's demands. Under this system, each part has its code, which will contain design and technological information about the part.

The code classifies parts by group, which enables the one that is most suitable for use in new structure to be found rapidly. The amount of information that the code can contain for each part makes this method universal. With reduction in the cost of equipment resources, this method is the most effective and the preferred one.



The next stage for introducing GPS is organization of the production equipment in the subject-specialized system. The parts that are subject to machining are analyzed mandatorily with a view to determining the desirability of creating a subject-specialized production system. After this work is completed, creation of subject-specialized sections can be undertaken. The main thing to which attention should be paid during the organization of sections is the tasked requirement for each machineable part, and also the demands made on the equipment and the tooling of the subject-specialized section. This is necessary for obtaining flexibility and a smooth workload for the sections.

The design of subject-specialized sections does not call for a division of equipment among the sections, so in some cases additional equipment is required for the outfitting of all subject-specialized sections.

In subject-specialized sections the equipment is universal and is applied in departments for small-series production. The placement of this equipment about the sections leads to change in the production potential, permitting the machining of an optimal parts mix as a function of the section's design.

The layout of a subject-specialized section is based on the parts to be machined and the installed equipment.

A U-shaped layout of the equipment, which reduces to a minimum the ratio of the number of machine tools to the number of operators, is preferable.

In order to support the section's self-supply capability, the necessary tooling should be placed within each subject-specialized section. Doing so speeds up resetting-up during change of the production plan.

The final stage of GPS introduction is automation of the subject-limited specialized production system.

When organizing a subject-limited production system, the effectiveness of creating an GPS must be studied and determined. During the study for manufactureability, the design of the parts and the process of assembly do not provide for automation of the production thereof. Change of the design and modernization of the equipment can solve this problem.

In order to create one GPS, it is necessary that the equipment which becomes part of the subject-specialized system meet the basic demands, including the demand that all the equipment should operate in an unmanned technology mode and interact mutually with other equipment of the section. A major portion of modern equipment does not interact with other production equipment that is included in the subject-specialized section. For this purpose the central control panel must issue the commands to each machine tool in the section.

A subject-specialized section must be reset for conversion to the production of other parts. This is done by special devices that are found on each machine tool, or

by the section's use of devices for transporting the parts, tooling, and the basic and auxiliary machining attachments.

Where there is a subject-specialized section, the failure of one machine tool to operate often leads to stoppage of all production in the section.

The main factor in reliability is the presence of an efficient system for transporting parts and tooling. Inoperability of a PR or automated transport system can slow or completely stop the flow of materials throughout the whole plant, whereas the failure of an automated system for storage and retrieval can stop the operation of all the factory equipment.

With the introduction of a GPS, providing for the controlled flow or transfer of materials throughout the whole production process becomes an important factor. In order to reduce to a minimum the amount of uncompleted production and to provide maximum flexibility of production, timely short-term calendar planning must be introduced which will cut to a minimum the intermediate storages at subject-specialized sections and increase to the maximum the use of equipment for transporting materials. The flow of materials within the subject-specialized section should be monitored and controlled carefully.

The complexity of creating such a GPS will require computerization that will ensure revision of the calendar plan as production requirements change. In an ideal variant, the GPS should consider the expenditures connected with implementing the variants being examined—variants in their creation and in effective application in production.

The system for transporting materials is the organizational and technological connecting link by means of which the GPS is created. Within a subject-specialized section, the basic purpose of the materials-transporting system is the transfer of parts among the machine tools. PR's often perform this function. The basic factors that affect the choice of PR's is load capability and precision in positioning of the part being machined.

If possible, the PR, which can serve several machine tools, should be located in the middle of the section. If several PR's are operating in the section, then collisions among them should be precluded. One of the layout variants is the installation of one robot for each machine tool and the transfer of the part between robots by means of conveyors within the subject-specialized section.

Ordinary conveyors can be used in a small production facility for moving materials to the section and return. For a large enterprise, automated transport systems are used—wheelless self-controlled transport equipment that automatically chooses the movement routes within the plant.

Automatically controlled transport units are of several types, beginning with small transporter carts for moving

adapter accessories and ending with transporter robots for moving assembled components and clamping adapters. A reliable method for moving carts is that of laying on the department's floor a cable that is not subjected to the effects of dirt and wear. However, this increases capital costs and provokes difficulties both during initial installation and during later changes in the movement routes of transporter equipment.

The last section that must be included in the GPS is the storage. A system for automated storage and retrieval of parts will have wide application and provide for integration and the necessary balance in the plant's work, and it completely automates the processes of transporting and accounting for materials.

The first systems for automated storage and retrieval for parts were made up of one or more rows of high shelving. On the shelves were bins for adapter accessories and parts. The automated transporter equipment was moved along the rows, delivering its contents to the prescribed place, coordination of operation of the whole system having been accomplished by the operator from a central control panel.

Records of the contents of each storage place are kept by the operator. There is an indication of the location, and also of what must be done: whether to find the required parts and whether to remove or return them, have been introduced into the system by the operator. Containers are returned to the place from which they were taken.

With integration of the automated system for storing and retrieving parts, the basic principle of its operation remains as before, except that the system of organization and control has been improved. The functions of keeping the records and inputting information are computerized and they are coordinated, providing balance in the

plant's work. This system should be mated with the system for transporting the GPS's materials, to provide for full automation of equipment operation. Fairly often parts are sent from the automated parts-storage-and-retrieval system in small lots, as needed. With change of the material reserves, which is possible with really flexible operation, the preservation of storage locations for parts in the automated system for parts storage and retrieval can lead to underutilization of production space. In order to reduce this problem to a minimum, a system for temporary storage is being introduced which can be adapted for all or part of an automated system for storing and retrieving parts.

This system considers the free space available for each part which comes into the system and assigns a place for storage. When the part leaves the system, the unfilled place will be recorded as being free for storage; storage space is kept track of throughout the whole system.

The introduction of GPS's enables small-series production to be provided with a maximum of the advantages of automating it progressively. The first step of a well planned program for introducing flexible production is modernization of the production equipment for creating machine-tool modules.

For a start, a system must be developed for introducing grouping technology, on the basis of which machine-tool modules will be created which will raise the effectiveness of GPS's and of all production as a whole.

When subject-specialized production systems are introduced and organizational problems are solved, it will be necessary to concentrate efforts on automating the incoming equipment.

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## CIVIL AVIATION

**Conversion: Reader Suggests Civil Use of Military Airports**

90UM0050B Moscow IZVESTIYA in Russian  
18 Oct 89 Morning Edition p 6

[Letter to the editors by reader A. Pivnik of Moscow:  
"Also a Military Airport"]

[Text] Who has not experienced difficulty obtaining tickets, suffering delays that complicate flying south on vacation every summer? Most of the trouble is due to shortcomings in ground facilities of Aeroflot. This includes runways, airports proper, and overloaded air traffic control systems.

One solution may be the utilization of military airports (especially alternate facilities) that carry little traffic. Evidently, the Union Council Commission for Problems of Transportation, Communications, and Information would be ideally suited to looking into this approach to resolving the problem. Also, this is an aspect of the conversion that has been the subject of much discussion.

Foreign experience in this area has been acquired. Charter flights to Yugoslavia from a British Air Force base have already been accomplished this summer. The British House of Commons is considering a list of military bases as candidates for nonmilitary airports (for joint usage), including the Greenham Common base so familiar to Soviet people, after which the American missiles will be removed in accordance with the agreement on medium-range missiles.

Military pilots recently took on the difficult task of delivering essential supplies to Armenia. However, that was an extreme situation. Why not utilize military transport aircraft to carry civilian freight on a routine basis?

## RAIL SYSTEMS

**Preparing Rail Lines for Winter**

904H0012A Moscow GUDOK in Russian 11 Oct 89 p 2

[Article by V. Vashchenko, GUDOK correspondent:  
"You Will Not Travel Far Without Ties"]

[Text] Novosibirsk—Major track repairs are one of the most important things in preparing a railroad for the winter. A catastrophic situation exists on the West Siberian Railroad in this regard. Only 272 kilometers of the 550 planned for this year were improved by 1 September! True, this figure will approach 300 by the end of the month. The autumn rains, however, have already come down in torrents and the Siberian frosts and snowstorms are just about to follow them.

If one thinks about it, uneasiness embraces one not so much for the coming winter as for the railroad's future in general. Judge for yourself: 43 percent of the total length of the West Siberian already needs urgent major repairs. In

order only to keep to that percentage, it is necessary to improve 500 kilometers of track a season. Today, the plan is in a mess. This means that it is necessary to make up for what was omitted and do no less than 700 kilometers next season! This was unrealistic with the previous level of material and technical support; with the present one—it is simply absurd. If decisive changes for the better do not occur, the railroad will be transformed into a mainline traffic jam in the not-too-distant future.... Then we will grab our head but it will be too late.

Informed people already understand what we are talking about: ties. The railroad should have received a little more than a million of them for the entire amount of major repairs but it has only received 461,599 at this time (as you see, they account for each tie there). It is the same picture with the delivery of switch ties and even worse with bridge ones. The road has not received any of these at all. I will explain right away the difference in the completed amount of major repairs and the delivery of ties: less than half have been received but more than half has been done. This is because the railroad got into debt where it could. This testifies that everything possible has been done. More accurately, almost everything. Because, in my view, they began to strike the bell a little late and beat only on the ones "authorized" by seniority. You see, the summer track work was completed without essentially managing to begin the spring. GUDOK talked about this on 11 May in a paragraph entitled "A Fiasco Ahead of Schedule." At that time, only one series of "windows" remained for the track grids being prepared for winter in the bases of the West Siberian Railroad's PMS [track machine station]. I "dug out," as they say, this information from confidential sources.

The example of the short-sightedness of the railroad's track directors, who refused to expand the area of seamless track as being unpromising for Siberia, was revealing. As is known, it is laid on reinforced concrete ties. If the technical policy were different, it would not be so serious now.

However, no response to this paragraph came from either the mainline directors or the Line Main Administration. Although no one is demanding repentance for past mistakes, I would like to know how they plan to live in the future.

In connection with the catastrophic shortage of ties on the railroad, they really beat the bell only at the end of July and the beginning of August when alarming telegrams and letters finally arrived in the Line Main Administration and directly in the Ministry of Railways' governing body and when the mainline's directors increased their trips to Moscow—again to the Ministry of Railways—although everyone understood that they were not able to do anything there. However, they sacredly observed the seniority system.

The "cardinal" measures were expressed in the sending of competent people "from below" to Moscow. A "brigade" headed by L. Nalivayko, a PMS-22 engineer and

Hero of Socialist Labor, and V. Stepanov, the chief of this track machine station, was formed. The star of the Hero "opened" many doors, including the USSR Council of Ministers; you see, it was there that the muddle over the ties had begun. However, here is the trouble: the delegation did not get in that door in the Council of Ministers. They were received by Comrade Voronin, a deputy chairman of the Council of Ministers. However, it was necessary to go to Comrade Gusev (this was what the knowledgeable people in the Ministry of Railways suggested to me). Having received no satisfaction, the "brigade" went to the editorial board of the PRAVDA newspaper. An article appeared on 25 August under the headline "We Are Not Taking Care of Ourselves..." with a commentary from the political economics department. However, even this action did not work.

It would be extremely naive to cherish the hope that an article in the branch's GUDOK would help in this situation. That is why it was decided to turn to you, comrade people's deputies and members of the USSR Supreme Soviet commission on transport, communications and information science matters. The situation with respect to major track repairs is practically identical on all railroad networks. Of the 30 million wooden ties required this year by the Ministry of Railways, Gosplan has allocated only 20 million and shipped 11.4 during the last nine months! All of the direct and collateral "effects" of this shortage are evident without any long explanations. That is why I will focus the attention of the USSR people's deputies on the main item that lies at the basis of the failure to supply ties—the USSR Council of Ministers decision to exclude ties and beams from the state order for the producer—the USSR Ministry of Light Industry—and the transfer of the Ministry of Railways and the Ministry of the Timber Industry to direct links in 1989 in this matter.

This means that whereas the railroads previously had contracts only with tie impregnating plants, they must now conclude them with timber industry facilities. The West Siberian Railroad now has six of these partners in the Tomsklesprom system to whom the Ministry of Railways has attached it rather strongly. In order to adjust and support mutual relations with them during the servicing of the tracks, it is necessary to establish—at a minimum—a special department to maintain competent lawyers for trials in the State Board of Arbitration. In the Line Main Administration, they are talking quite seriously about the necessity to establish these structures because a self-willed child has been given to the timber industry facilities: they are sending a counter plan to the railroad's contract—a plan that has been approved by the labor collective council where, as a rule, they reduce their obligations for the sake of a quick profit. Why mess about with unprofitable ties when one can, for example, sell timber for export? Moreover, the Tomsklesprom subdivisions have objective reasons: they can deliver timber only by floating or over winter roads. A bad road is like a plucked chicken....

In my opinion, it is not necessary to be a Solomon in order to understand that—without establishing a new mechanism—one cannot break down the old, but this is what happened in the Council of Ministers. They have broken up the "mechanism" for supplying railroads with ties and switch and bridge ties but there is nothing good to replace it.

It is alarming that we still have in effect a system for making critical decisions without the necessary work and study. Such liberties are fraught with serious consequences in any sector of the economy and even more so in one like transport which was, is and will be a state sector. It is simply queer for a state sector to be denied a state order.

### Transport Specialists Discuss Supermainline

904H0003A Moscow SOVETSKAYA ROSSIYA in  
Russian 28 Sep 89 Second Edition p 4

[Interview with S. Zhabrov, deputy general designer, candidate of Technical Sciences, and S. Pripistsov, senior scientific associate, of the Superfast Rail Transport Laboratory of the VNIIZhT [All-Union Scientific-Research Institute of Railroad Transport], conducted by V. Romanchin: "The Express Rushes South"]

[Text] Every year it becomes more difficult to go south. It must not be expected that the situation will improve in the near future. The convictions of specialists convince us: The mobility of the population and, to put it bluntly, "the desire to relocate," is not dropping off, but, on the contrary, is growing.

The problem could, to all appearances, be solved by the high-speed supermainline "Center-South," which should link Leningrad and Moscow with regions of the Crimea and the Caucasus. SOVETSKAYA ROSSIYA has already recounted this project. By no means all the readers have approved it, justifiably expressing critical comments concerning the workers on the unusual project, or voicing doubts about the expedience of building the main line.

We informed the associates of the laboratory of "High-Speed Railroad Transport" of VNIIZhT [All-Union Scientific Research Institute of Railroad Transport], S. Zhabrov, deputy general designer of the project, candidate in Technical Sciences, and S. Pripistsov, senior scientific associate, of all the comments and proposals.

"When starting to work out this unusual project," said S. Zhabrov, "We assumed that it would not be unanimously adopted. This is natural: there is not enough money in the country, and here you are!—the mainline of the future. I would like to say something, though: before discussing the problem of building a high-speed mainline, the situation that has formed on the railroads must be investigated.

"Predictions show that on lines to the south, passenger and freight transport will increase by one-fourth by the

year 2000. After all, these roads are extremely overloaded right now. It would appear that in the very near future, they will simply be choked. In order to get out of this complicated situation, passenger and freight traffic must be separated. This is possible only if a high-speed supermainline is built."

[Romanchin] Many readers feel: its construction will cost, as they say, a pretty penny. Is it not cheaper to put the existing lines in order?

[Zhabrov] Actually, it requires quite large capital investments. If, however, we wish to have modern high-speed transport, the transport of the future, you cannot do it without expenditures. We have saved too long on everything. Everyone probably perceives what this has led to.

Now about the old lines. In the last few years the Ministry of Railways has been doing work on rebuilding the roads on nine of the most stressed routes. This also costs quite a lot of money. Judge for yourselves: one minute of train acceleration costs over three million rubles. These expenditures, however, cannot in principle improve the quality of passenger service, raise the speed and ensure safety for train traffic. Just one single route such as, for example, "Center-South," which will not be constantly broken down by large, heavy commodities, can create the necessary comfort and safety for passengers.

[Romanchin] Almost everyone who has sent letters to the editors is worried that a great deal of fertile land will have to be confiscated for the new line.

[Pripistsov] It is, of course, a shame about the land, but you cannot stretch a mainline through the air. Moreover, this fact must be taken into consideration: it takes three-fold less land to build a double-track line than to build a highway with the same throughput. Approximately the same amount of land is allotted to build airports, calculated per passenger transported.

[Romanchin] Our readers are worried that when the "Center-South" mainline is put into operation, service will improve for only Moscow and Leningrad citizens.

[Zhabrov] These are unfounded worries: the construction of a high-speed mainline will in principle change the transport service situation for the population on a sizable territory of the European part of Russia, the Ukraine and also the Transcaucasus republics. The trip from Moscow to Leningrad will take 2.5-3 hours, from Moscow to Kharkov—3 hours, from Kharkov to Zaporozhye—1.5 hours, and from Kharkov to Rostov-on-Don—a little over 2 hours.

High-speed trains will also be able to serve cities located off the new line. For example, the Moscow-Dnepropetrovsk train will make a 3.5-4-hour trip, even though the high-speed mainline does not pass through Dnepropetrovsk. The trip time to Donetsk, Sukhumi and Tbilisi will be cut. High-speed traffic will interconnect 25 cities, and only 10 of them will be directly on the

route. On the whole, constructing the new mainline will improve the transport service for an area of the country with a population of over 100 million persons.

[Romanchin] You speak of the transport of the future. Does it not seem to you, however, that creating a high-speed mainline along which only ordinary express trains will rush at high speed is already something from yesterday? The experience of Japan, the FRG and France indicates that magnetic suspension transport, which can build up a speed of up to 500 kilometers an hour, must be more widely introduced.

[Pripistsov] The experience of domestic and foreign railroads shows that the classic "wheel-rail" system has by no means exhausted its potentials. For example, last year the FRG railroad workers established a record—406.9 kilometers an hour.

We feel that a magnetic suspension train should in the future become a part of intercity types of surface transport. For example, the "Center-South" mainline will convey passengers to Simferopol in just a few hours, and magnetic suspension transport will carry them from Simferopol to Yalta in a matter of minutes.

[Romanchin] The readers have formed the opinion that the cost of tickets for a trip on a high-speed mainline will be very high. Is this so?

[Pripistsov] This rate should naturally ensure full reimbursement for the train operation and also show the necessary profit. This does not at all mean, however, that a ticket on a high-speed express train will cost more than one for a plane trip from Moscow to Adler. Right now we can say: compared with the rates on a high-speed train running to the south, the cost of a ticket on a high-speed express will be increased only 1.5-fold.

**From the Editor.** We have now heard the railroad men. The problem of constructing a high-speed mainline is now in the stage of scientific-research and design study. Only after a thorough examination of the results of the study will there be a decisive solution to the problem of the expediency of building a supermainline "Center-South." At least, so responsible specialists of VNIIZhT have assured us. Over to you, reader.

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### **Performance of Automated Rail Operations Critiqued**

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TRANSPORT in Russian No 9, Sep 89 pp 6-10

[Article by Northern Railroad First Deputy Chief and Chief Engineer Yu.S. Korotnev, Railroad Shipping Service Chief N.S. Plutenko and Railroad Shipping Service Deputy Chief Candidate of Technical Sciences G.N. Kegeles under the rubric "Shipping—Organization, Management; Scientific and Technical Progress in

Transport": "Automated Shipping Management Center: First Steps and Results (From the Experience of the Northern Railroad)"

[Text] *A comprehensive program of step-by-step conversion to a centralized system for managing the shipping process based on creating automated dispatching centers is being implemented on the railroads. A group of specialists from the Northern Railroad appears below with a description of the experience accumulated thus far and ways of resolving that task on that mainline.*

### Concentration of Dispatching Supervision

The idea of creating automated dispatching centers arose on the railroad as early as the beginning of the 1980s, but it was not easy to bring it to life. This was the plan at first: assemble the train dispatchers at the shipping service from the five railroad divisions nearest to Yaroslavl and put their workstations in one facility in neighboring rooms, and take away from them the job of filling in the right half of the schedule through automation. This made it possible, according to our calculations, to lengthen the dispatcher sections and thereby reduce the number of junctions between them. It was planned to group the dispatcher circles by lines, establishing the position of senior dispatcher for coordinating the operation of the sectional dispatchers that were part of each group. The opportunities for supervisors to obtain information right from the graphical timetable of the sectional dispatcher and at the same time to see the train situation on whole lines through the lively interaction of the dispatchers should raise the level of organization in supervising operational work. A dispatching center is now being created on the Central Asian Railroad according to this same plan.

The work according to this plan, in the face of all the advantages of concentrating dispatching supervision, also has connected with it a number of difficulties that forced us to display a certain caution. This relates first and foremost to the social issues (housing and children's institutions among others) that inevitably arise in moving a large number of dispatchers and other types of operational personnel from the divisions to the railroad administration.

Second, a number of objective reasons in favor of preserving the railroad divisions with their traditional functions existed at the beginning of the 1980s. The transfer of operational personnel from the division to the railroad administration would inevitably radically alter the working conditions of the division and would logically lead to its dissolution as such. This problem, in our opinion, exists today as well. It is essential, in resolving the issue of concentrating dispatching supervision, to consider at the same the complex issues of reinforcing the line enterprises and converting them to economic accountability with direct subordination to the appropriate services in an operational as well as a technical regard. A procedure should be established at the same time for contract mutual relations between the enterprises of various services, regulating their functions and

determining a system of solutions for those issues that arise at the junctions of activity of the various services.

Another circumstance arose as well that forced us to display caution in relation to moving the dispatchers from the divisions to the railroad administration. The issue is computers. It had become obvious by the beginning of the 1980s that an automated system oriented toward train operations and operating in real time was needed to improve the organization of railcar movement, train information and the work organization of locomotives and crews. Such an ASOUP [shipping management automated control system] was created on our railroad and then circulated around the network in conjunction with the ASUZhT [Automated Control System for Railroad Transportation] PKTB [Planning and Technological Design Bureau] using cumulative experience in automation.

The incorporation of an ASOUP made possible to collect in computer memory all of the essential information on trains, locomotives and crews, incorporate new technology for processing train information, provide the operational workers with machine-generated process documents, improve the technology for sorting work at stations and information support for clients, automate the accounting for train and railcar turnover at junctions and resolve a number of issues in organizing the work of locomotives and locomotive crews. The opportunity for direct dialogue with the computer from the workstations changed the functions of the workers at the station processing centers for handling shipping documents, the station shift supervisors and the dispatching apparatus. The prestige of those jobs went up.

The development and incorporation of an ASOUP along with other measures allowed the railroad to ensure the steady flow of railcar traffic. But the main thing is that the incorporation of computer technology uncovered new opportunities for shipping management and made the management process a non-territorial one. Management functions, after all, had traditionally been distributed among the divisions and the railroad administration by territory. The administration—through the operational-control apparatus—basically took upon itself the function of monitoring operational work and acted as intermediary when contradictions arose at the junctions of the divisions. The railroad dispatchers resolved only certain questions of shipping organization directly and without the participation of the railroad divisions.

This distribution of duties was connected chiefly with the fact that only the division possessed real-time and detailed information on the course of operational work, while the railroad dispatchers executed aggregate amalgamated timetables of actual traffic that lagged behind actual events by up to three hours. It is namely the extent of real-time and detailed information on the shipping process possessed by each level of the administration that determines its functions. The idea of the transfer of the dispatchers from the divisions to the administration,

in our opinion, chiefly consists chiefly of the concentration of real-time information on train operations there.

The incorporation of an ASOUP with the appropriate organization of information entry into the computers on train traffic removes these information barriers. The opportunity arises for workers at various levels of the administration to obtain real-time information through the central computer of the IVTs [computer-information center] on the course of operational work at an identical depth and level of detail regardless of where they are located in a territorial sense. The workers at stations and railroad divisions can get data from the computer on the long-range approach of trains, i.e. information traditionally possessed by railroad dispatchers. The senior members of the railroad administration and MPS [Ministry of Railways] can in turn obtain the same information as the division workers on the composition of the trains and operations with them at technical stations in up-to-the-minute fashion.

The incorporation of the ASOUP has thus made it possible to redistribute the functions among the "floors" of the administration in a new fashion. The opportunity has appeared in particular of shifting a number of functions in managing train operations to the shipping service without even moving the dispatcher apparatus there from the divisions. It was namely that which impelled MPS to charge the Northern Railroad, along with the South Urals, with creating railroad automated dispatcher control centers (DADTsU) based on the operational-control departments of the shipping service and working out the technology and methods for managing train operations under the conditions of DADTsU operation on an experimental basis.

### The Dispatcher Control Center

The creation of the DADTsU is envisaged in two stages. It was first decided to equip the workstations of the sector and railroad dispatchers with terminal apparatus and, making use of the capabilities of the ASOUP, issue information to them on the course of train operations. The second stage assumed the transfer of the workstations into a common facility equipped with collective information-display equipment (graphics displays).

The first stage of such a DADTsU was put into commercial operation in 1986. The workstations of the sector and railroad dispatchers were equipped with teletypes and displays joined along direct and switched communications channels with the central computer of the ASOUP. The essential software was developed. Information on the composition of trains and operations with them at technical stations began coming in automatically to the sector dispatchers. This made it possible to be freed of filling out by hand the right side of the timetable and to concentrate their attention on organizing the throughput of trains by sector. The railroad dispatchers, receiving information on train traffic from the ASOUP,

ceased to lag behind events and took upon themselves a number of functions in managing train traffic on the lines.

The volume of information and set of process documents coming from the computer today is quite large. The ASOUP issues over 13,000 documents over the course of a day both by user request and in automatic mode. It should be said that about 6,000 information reports on train composition and their movements and the changing states of the locomotives come in to the computer from the stations and the locomotive depots. Data from telegrams and wheel reports for all trains formed up and received from other railroads come in, and 98.5 percent of the trains are dispatched from the stations where they are formed up with machine-generated wheel reports. Reports are entered into the computer on arrival and departure for 99.3 percent of the trains, including 95.5 percent with a delay of less than 30 minutes from the time the train operation is completed.

The dispatchers make widespread use of computer-generated information on the composition of trains and their separations according to the formation plan and the type of rolling stock, the close-in and long-range approach of trains toward the sorting and sector stations, the operations of the stations in receiving and dispatch, the fulfillment of the plan for train composition and the completeness of their weight and type composition, among other things. All of this makes it possible to track the status of the trains in visible fashion and to make up-to-the-minute decisions.

The existing set of ASOUP solutions is at the same time inadequate for creating automated control centers, since the technology and methods for managing the shipping process remain as before. The drawbacks that currently exist in operational work associated with the imperfect nature of its operational planning, among other things, are consequently preserved.

After all, the following four factors must coincide in time for a train to leave the station: the presence of a group of railcars ready for departure, a free "time-path curve" in the schedule or at least one free timetable field for the succession time, and a locomotive and a locomotive crew. This is quite difficult to achieve in the operational planning of train operations. The "time-path curves" have already been determined in the compilation of the train-traffic schedule with a regard for the maximum utilization of the throughput capacity and, as a rule, are unalterable over the course of a year even with changes in the dimensions of traffic. The presence of the locomotive crew without a call system is often determined by the crew dispatcher long before the composition of the daily shift plan, not to mention the current one.

The regulation of a locomotive inventory operating on large tractive loops (and this is the most progressive method of operating electric and diesel locomotives) is made extremely difficult. The decision to send a locomotive up to this or that point must necessarily be made



ahead of time, when often not only the the time of train departure (the "time-path curve"), but even the impending extent of the traffic, are unknown. Various approaches and depths of planning for each of these factors do not always ensure their coincidence in time. And then either the railcars are waiting for a locomotive and crew or, on the contrary, the traction equipment is standing idle.

That is why the traditional methods of planning train operations have led to the dispatch of trains from stations according to plans that have not been composed in advance or do not coincide in the readiness of the railcars, locomotive and locomotive crew. Work "when ready" has taken on a mass nature in railroad transport, since in the face of the existing difficulties in the operational planning of train operations it makes it possible to make better use of the throughput capacity of the sectors. It gives rise to irresponsibility and spontaneity at the same time.

The setting of time standards for locomotive operation between TO-2 maintenance also leads to operational difficulties. The dispatcher should chase the locomotive over to a technical maintenance station (PTOI) before the stipulated hourly standard is exceeded in order to avoid "overruns." Such dispatcher regulation is difficult, and often locomotives must be decoupled from through trains for doing TO-2.

The sectional junctions for the turnaround of locomotives and crews are always potential barriers for the passage of railcar traffic under the prevailing methods of operation. The arrivals of up trains and down trains often do not coincide in time due to irregularities in traffic. This leads to a surplus of some locomotives and crews and a shortage of others, makes the throughput of car traffic more difficult and slows traffic down. The question of how to manage with the aid of the DADTsU must therefore necessarily be resolved to perform the operations of the second phase of the dispatcher center using the operational-control department of the shipping service, i.e. the transfer of the workstations of the railroad dispatchers and other operational workers to a common facility. How should the technology and methods of managing train operations be altered? We have developed first and foremost a technology for the automated management of train operations (TAUPR) for determining the organizational forms of the dispatcher center.

### The TAUPR Technology

The new technology was to provide for a departure from work when ready, raise the role of operational planning and the train timetable and provide for close interaction of stations and their adjoining sections and, simultaneously, a concentration of the control functions of train-operations supervision on the line. The first thing required for this was to change the existing system of operational planning for train operations. Operational planning on the railroad network, as is well known, is

currently conducted in accordance with the instructions approved by MPS in 1979 that envisage the development of daily, shift and current (4-6-hour periods) plans.

The daily-shift plan defines in general form the parameters of train operations for a day and a shift, while practical operations are conducted according to the current plan detailed by the timetable "time-path curve." The very presence of two plans (daily-shift and current) introduces an element of disorganization into train operations, since the current plan effectively abrogates the daily one. It was decided to have a single daily plan for train operations, but detailed down to the "time-path curve" of the timetable. Such detail makes it possible to use the daily plan not only for establishing the general parameters of the upcoming work, but also for the concrete "link-up" of trains, locomotives and locomotive crews. Current planning thereby loses its independent significance and becomes one of the most important measures for ensuring the daily plan.

The timetable of train traffic developed for every section with a regard for the utilization of existing throughput capacity is the foundation of the new approach to operational planning. Variations of the timetable for various dimensions of traffic are moreover developed via the exclusion of a number of "time-path curves" from it. The operational planning of train operations is in this case reduced to determining the expected dimensions of traffic depending on the current shipping conditions and the development and announcement of the corresponding version of the timetable. The parameters of train operations over a day (or shift) will derive from the announcement of the timetable version.

It is essential first of all to ensure the fulfillment of the plan for train operations developed thereby and, second, to realize the advantages of the new system of operational planning. The development of the TAUPR on the railroad is being conducted in this direction.

It is necessary to know the expected dimensions of the traffic on each section in order to devise a technically substantiated plan for train operations (the selection of a "time-path curve" in the version). There have been no few attempts in recent years to forecast the amount of traffic for a period of more than a day. We could point out the development of this issue on the South Urals and Moscow railroads and at the MPS GVTs [Main Computer Center], among others. Such developments have also been made within the framework of the TAUPR on the Northern Railroad. Analysis shows that it is impossible to achieve a forecast of the expected dimensions of the traffic with precision down to the timetable "time-path curve" due to the complexity of the process. This task was therefore not even posed in the development of the TAUPR. The forecast was made taking into account a determination of the expected dimensions of the traffic to a depth of 1.5 days with a precision of down to the timetable version (plus or minus five trains).



Several approaches were envisaged in view of the experimental nature of the TAUPR developments for determining the expected dimensions of the traffic. They can be determined first of all using the traditional method based on the professional experience of the senior dispatcher apparatus of the division and the operational-control department of the shipping service. The possibility of issuing specially developed machine documents from the ASOUP for this purpose that can be obtained upon request can be realized in addition to this. They contain lists of the trains, with an indication of the positioning at the moment of inquiry, that will be arriving in a given period at the station we are interested in, information on the hourly forecast of train departures from the station and other things.

The task of selecting the timetable version according to which the work should be organized occupies an important place in the TAUPR system. The version is formed via the elimination from the MPS timetable of all "time-path curves" that have a minimal probability of employment by the train where the remaining number of "time-path curves" will correspond to the expected dimensions of the traffic.

Proceeding from the fact that mistakes could be made in determining the expected dimensions of the traffic or as the result of the deviation of the actual dimensions from those forecast, every version of the timetable envisages the establishment of three categories of "time-path curves"—firm, optional and supplemental. The number of firm "time-path curves" herein determines the lower limit of the interval of the dimensions of train traffic corresponding to the given version, while the total of the firm, optional and supplemental "time-path curves" is the upper limit of this interval.

For example, if according to the forecast the departure of 50 trains is expected on the section in the next day, it is expedient to develop a version of the timetable that contains 45 firm "time-path curves," 5 optional and 5 supplemental ones. When the dimensions of the traffic decrease versus the 50 trains forecast, the situation is stabilized via the cancellation of the optional ones, and if they increase, via the announcement of additional supplemental "paths." The question consists of canceling the needed number of "paths" in the MPS timetable in reasoned fashion each time to obtain the necessary version, or assigning optional and supplemental "paths" in a well-founded manner. This is done by computer.

The computer accumulates statistical data on the dimensions of actual traffic, the line speeds of the trains along the sections and other parameters of train operation within the framework of the TAUPR. The computer, upon the appropriate inquiry containing an indication of the dimensions of the traffic and the nature of the expected train operations, issues information in a form convenient for the user on the requirements for "time-path curves" by time periods, their availability in the MPS timetable and the requirements for "paths" in each period.

A fragment of such a document is shown in Fig. 3 [not reproduced] for which 12 days were selected with assigned parameters of departure from 44 to 53 trains a day from the Vologda Station to Danilov, including 53 trains the first day, 48 the second, 48 the third, 53 the fourth, 47 the fifth, 49 the sixth, 49 the seventh, 47 the eighth, 44 the ninth, 49 the tenth, 49 the eleventh and 52 trains the twelfth. The average traffic was 48 trains. Every day was divided into 288 five-minute intervals. That interval is shown as a stroke on the x-axis. The trains departing in each five-minute interval are recorded in a special array of the computer memory in the process of operation. The numbers on the y-axis show the total number of trains departing over the whole such period. The letter P ("Time-Path Curve") signifies the five-minute intervals in which the timetable envisages the departure of trains.

Discrete statistical data on the number of trains actually departing and the "paths" of the timetable can be converted, with the appropriate mathematical processing, into curves of the density of train departures. One need only take the integral of the corresponding curve for a given period to determine the requirement for "time-paths" for any period or the availability of them in the timetable. The difference thus calculated between the availability and requirements for "paths" for each hour is issued from the computer with a plus sign if the timetable has more "paths" than are required, and with a minus sign if there are fewer "paths."

The required quantity of "time-paths" is, at the request of the user, compared with a version of the timetable indicated in the inquiry by the user rather than the MPS timetable. The opportunity thus appears of playing through situations and selected a well-founded plan for train departures.

The possibility of selecting a well-founded version of the timetable and determining the firm, optional and supplemental "time-path curves" is done within the framework of the TAUPR on a YeS computer and a personal computer using the TAP-34 microcomputer. The TAUPR computer database is organized with a regard for the presence in it of definite zones of the MPS timetable, a certain number of timetable versions worked out in advance, a working area in which the needed version is devised and an area where the versions of the timetable are located—both the one in effect and the one announced for the upcoming period.

The computer automatically notifies the workers in advance on the date and time of conversion to operations according to the new versions of the timetable (no less than 12 hours before the start-up of the new version). The entry of information into the computer on the transfer of the corresponding version into the area of the upcoming period serves as the signal for this. At that moment, as well as before the conversion to the operative timetable, the computer issues an instruction to the user on the time to change the timetable and the new version itself.

And so the version of the timetable corresponding to the expected dimensions of the traffic and containing the essential number of firm, optional and supplemental "time-path curves" is selected. The opportunity appears based on it to develop parameters for the daily-shift plan either manually or using the computer: transfers by junctions, the requirements for locomotives and locomotive crews, assignments for the allocation of machinery for reserve and engineers with their assistants and passengers according to regulatory measures, assignments of stations for formation and the receipt and dispatch of trains.

The TAUPR makes it possible to supplement the daily-shift plan with another important parameter—a standard for the departure of trains from the stations using locomotives running on "rings" (without stopping at the depot) and their issue from the depot. These indicators are not currently subject to standards setting. If there is no locomotive for a train, the traffic workers feel that the depot has not let it out, while the depot workers declare that the locomotive has not reached the traffic workers and that they are not responsible for the disruption of departures.

An opportunity for setting norms for issuance appears with the organization of locomotive operations according to a routing system establishing a procedure for their operation in a tractive loop and providing for their guaranteed arrival for TO-2 maintenance. The journal has already described this system in more detail.

Special programs have been developed within the framework of TAUPR for managing locomotives operating on a routing system with the aid of computers. This is connected with the fact that by the time of arrival of the train at the station the operational apparatus should know how to deal with the arriving locomotive and whether it can be sent along with any trains or only in certain directions or whether it needs to be sent to the depot for TO-2 maintenance or other types of repairs. This question is resolved by a microcomputer installed at the workstation of the locomotive dispatcher. The parameters of the routing system and other standard information is entered into its memory.

The personal computer, receiving information on the approach of trains and locomotives from the central computer of the ASOUP, computes and issues to the dispatcher recommendations for handling the arriving locomotives. If the locomotive dispatcher does not agree with its suggestions, he can make the appropriate corrections. Instructions are issued on how to make further use of the arriving locomotives at the stipulation of the dispatcher's computer through the central computers of the IVTs in automatic mode. The operational personnel of the division and depot monitor the course of train operations and provide for the fulfillment of the daily plan for train departures with the aid of microcomputers at the automated workstations.

The daily-shift plan, detailed down to the "time-path curves" of the timetable, makes it possible to reject traditional operations where locomotives and crews were

"hooked up" with trains and "paths" of the timetable were selected according to their readiness. Trains are prepared and locomotives and crews are distributed according to the new technology by "time-paths" of the daily-shift plan. The appearance of locomotive crews working according to a non-call system are designated for all the firm and optional "paths" of the operative version of the timetable. The crews designated for the optional "paths" herein are warned of the fact that in the event of their postponement the time of appearance will be changed. Locomotive crews warned of this in advance are called for the supplemental "paths" assigned according to the version of the timetable.

Locomotives are allotted for all firm, optional and supplemental "time-path curves" of the operative version of the timetable. If supplemental "paths" are not assigned or optional ones are canceled, the locomotives not employed in train operations remain in reserve.

The attachment of trains to "paths" is performed in the following manner: the days are divided into periods (3-6 hours, for example). The firm "paths" are then first of all "closed" within each such period, then the optional ones, and only after that can the supplemental scheduling envisaged by the operative version be designated.

The operational work to support the daily-shift plan is performed in the following sequence. The locomotive-depot dispatcher has a log of the work details at his automated workstation designating the crews for the firm and optional "paths" of the operative version of the timetable in advance to the extent of the return of crews from prior trips. The information in that log is entered periodically into the central ASOUP computer. The depot shift supervisor enters information on the readiness of the locomotives in the depot that he collects on his own personal computer as well. Information on train formation at the sorting yard is prepared on the station computer, operating as part of the ASUSS [sorting-yard automated control system], and is transmitted periodically to the central ASOUP machine.

The central computer issues all of this information, as well as information on the approach of trains and locomotives, to the personal computers of the division operational workers. The best link-ups of trains, locomotives and locomotive crews for the "time-path curves" of the timetable are selected via playing through various solutions, and the fragment of the plan for 4-6 hours is issued through the central ASOUP computer in automatic mode to the operational workers of the station and the depot.

The TAUPR also resolves a number of tasks in providing for the interaction of stations and the lines adjoining them, monitoring the operations of locomotive turnaround points and locomotive crews and intra-railroad junctions. This system is currently being run through in the test yard of the Vologda Division and the work is not yet complete, but some conclusions can be drawn from the developments that have been made nonetheless.

Practice and analysis show that with the technical and information support existing within the ASOUP and without material capital investments, it is possible to automate a whole series of elements in the dispatcher supervision of train operations and on that basis to improve the utilization of rolling stock and locomotive crews. The automation of dispatcher supervision should be combined with changes in the technology and methods of managing train operations and, in particular, a detailing of the daily-shift plan down to "time-path curves" in the timetable by categories as well as quantity, the use of a routing system for locomotive operations in loops with "sliding" junctions, combined modes of operation for locomotive crews etc. The TAUPR being developed on the railroad can serve as the foundation for the new organization of train operations.

Automated dispatching control centers must thereby be created so as to form a system of unified dispatcher control for the whole network. Functions should be distributed among management levels therein according to technological principles rather than territorial ones (the availability of the appropriate information). It is thus expedient to charge the MPS ADTsU [Automated Transport Control Dispatching Center] with determining the expected dimensions of traffic on the sections and the utilization of the sorting stations, since it is only possible to have an effect on railcar traffic at that level. Daily-shift plans detailed down to the "time-path curves" of the timetable can be developed at MPS or at the railroads. The functions of current planning of locomotive and crew operations at the stations and the principal depots should be shifted to the depot shift supervisors, giving those enterprises the opportunity of managing their own locomotives and crews.

The creation of automated shipping-process control centers is best done step-by-step. It is essential first and foremost to expand the capabilities of the ASOUP and incorporate TAUPR and other intensive technologies, and on that basis to concentrate a number of functions in the management of train operations on entire lines in the railroad administrations and at MPS ADTsU. A transfer of sectional dispatchers from the divisions to DADTsU should be done to the extent of the solution of the technical, organizational and social issues connected with it.

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### Automated Information Aids Rail Operations

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TRANSPORT in Russian No 9, Sep 89 pp 11-12

[Article by V.S. Dmitriyev, deputy shift chief of the Operational-Control Department of the Shipping Service of the Northern Railroad, Yaroslavl: "My Computer Assistant"]

[Text] With steam traction the dispatcher sections were limited to sectional stations. The train dispatcher was

the complete master on the section. He organized the passage of trains, the issue and removal of local railcars, linked the operational work of the section with the adjoining stations and "hooked up" locomotives and crews to the trains at them. Under those conditions the railroad dispatcher performed just the functions of monitoring the operations of the division, and was the "eyes and ears" of railroad management and an advisor in difficult situations, as well as smoothing over conflicts at the boundaries between divisions.

The line speeds of trains and the operating sections of locomotives have increased with the growth in technical sophistication of the lines—the incorporation of automatic signaling, continuous-welded rails etc. They had included two or three dispatcher sections each. With the appearance of diesel and electric locomotives they began operating on loops of greater length. The turnaround point for diesel locomotives from the Konosha Station to Sosnogorsk is 850 km [kilometers]. It includes seven dispatcher sections. There are five dispatcher sections from Sosnogorsk to Vorkuta—580 km. Train dispatchers cannot regulate the operations of the locomotive fleet and locomotive crews efficiently under these conditions, and this function has been transferred to the railroad dispatchers.

This is not, bluntly speaking, a simple task. We need operational information on the train position, the availability of locomotives and crews at turnaround points and the expected dimensions of the traffic at least a day ahead of time. Only by having complete and trustworthy information at his disposal can the railroad dispatcher plan operations correctly and give instructions to assign locomotives as a reserve or crews for passengers to this or that point. Up until recently the information needed by the railroad dispatcher came in an abbreviated timetable of actual train traffic. The dispatcher made that timetable based on the word of the division or station operator, with a lag of 3-4 hours behind the actual situation. He was often late in making decisions due to this.

An operational shipping management automated control system (ASOUP) has been developed with the appearance of computers and the equipping of railroad computer-information centers with them. This system currently provides real-time information support on the availability of organized trains and their state, movements and car-by-car composition, as well as conducting the monitoring and accounting of inter-division and inter-railroad transfers of trains and railcars, the observance of the formation plan, train weight and length standards, the couplings and decouplings of railcars etc. for the railroad administration.

Today the workstation of the railroad dispatcher is equipped with displays and teletypes linked with the computer at the railroad computer-information center [IVTs], and through it with the IVTs of neighboring railroads. Now the dispatcher does an abbreviated timetable by taking the corresponding information from the display screen. By pushing two function keys, he obtains

on the screen, by way of example, Form 164 on operations at Konosha Station. It shows the number of the train and locomotive, the time of arrival and departure

of consists and the train index, as well as data on couplings and decouplings at this station and disruptions in the formation plan:

CC NOR 164 22-03 11-03 CC 28, Train Operations of Station KON-1 %

Number	Arr	Loc Arr	Siding	Dep	Number	Dep Loc Ext	Weight	Index
3051	2641	09-30	6/02	10-40	3051	2040:059	3286	2936+041+3000
2029	2600	11-01	6/02			049	5351	0160+074+3026
3004	659	09-50	2/01	10-25	3004	1946:061	3038	3000+095+2900
2926	2040	10-01	1/01	10-55	2926	2641:057	1113	1000+138+2940

It can easily be determined from this form how much time trains have spent at the station, which ones are there at a given moment, etc.

The information from Form 57 on the status on the section adjoining the station or junction is widely employed by railroad dispatchers. It indicates the

numbers of the trains and the time they left the neighboring section station, the number of the locomotive, the last name of the engineer and what time he came on the job, for example. Knowing the movement time on the section, it can be told from the form whether the train is standing aside or is waiting to be received.

05 NOR 57 22.03 17-40 ADM28, Approach of Trains to Konosha Center %

From Dir. VOL-1						
4302(0001+	240	+0666)	Dep 21	06-05		0/000
6472(0000+	21	+6472)	Dep 21	12-45		6/000
—VL60P/K		1038	Golodov		11-35	
6468(0000+	21	+6468)	Dep 21	17-25		7/000
—VL60P/K		1894	Belov		16-15	
6408(0000+	22	+6408)	Dep 22	08-15		6/000
—VL60P/K		256	Borisov B.A.		07-05	
6472(0000+	22	+6472)	Dep 22	13-00		6/000
—VL60P/K		663	Kustov		11-35	
0420(0000+	22	+0420)	Dep 22	13-20		10/000
—VL60P/K		2203	Gvozdev N.N.		11-00	

The efficiency in using the results of computer calculations consists of the fact that the operational information can be obtained, as a rule, in 5-10 minutes, and at most 30 minutes, after the completion of a train operation (Form 164 was obtained at 11:03, and it had a train that arrived at 11:01). This not only allows the railroad dispatcher, with the aid of the information on the display, to make the necessary decisions, but also to do an abbreviated timetable of actual traffic under nearly real-time conditions.

The ASOUP made it possible for the dispatcher really to manage train traffic on the lines, have an active influence on the course of shipping and take up-to-the-minute steps to stabilize the train situation in the event difficulties arise. Information is obtained, by way of example, that the sorting is being delayed on the hump of the Yaroslavl-Main Station and the danger of delays in train receiving is arising. Instructions must be given first and

foremost to the stations of Vologda and Konosha to send through trains to Yaroslavl first of all.

Next, making use of computer-generated data we will do an analysis of the distribution of railcars in consists running to Yaroslavl-Main by types of formation plan and, proceeding from this, determine what trains can be broken down at Losta Station and, finally, if necessary, instructions can be issued for the temporary stoppage of trains on the stretch before Konosha, 350 km from Yaroslavl.

Such stations as Konosha (the junction for the Vologda, Arkhangelsk and Solvychegodsk divisions) and Danilov (Yaroslavl, Vologda and Buysk) also require particular attention. Their monitoring is very important for regulating the operations of locomotives and crews. In this case we will use Form 3302 as issued for those stations, which shows the number of crews at the moment of inquiry and the time the rest period of each crew ends, for example:

CC NOR 3302 22.03 17-32 ADM28, Information on Availability of TCh-11 Crews at KON-1 Turnaround Point %								
Con	Engineer	Tab. No.	Appearance	Date	Time	Number	Index	Ready
Arr	Kholin	00443	00-44	22.03	08-15	2134	3000+094+2947	12-19
Arr	Goryachov	00295	01-54	22.03	08-25	2136	3000+055+0160	11-59
Arr	Zhukov	00546	03-14	22.03	09-01	1602	3025+055+0163	12-13
Arr	Khoromenda	00569	02-42	22.03	09-50	3004	3000+095+2900	13-43
...	...	...	...	...	...	...	...	...
Arr	Kuznetsov	00042	07-24	22.03	13-38	1604	3025+059+0163	17-04

From Form 57 we find the time of arrival of the engineers in trains brought up to the station. The railroad dispatcher, with that information, can "hook up" a certain locomotive crew to each train.

Thanks to the incorporation of the ASOUP we are able to perform functions that were impossible before. Form 7010, for example, provides information on local freight for certain stations in the division. It indicates the railcars, weight, recipient, freight and train index for the train the freight is on, while Form 11 tells us the "history" of this train. The dispatcher organizes the passage of such trains to ensure bringing them up to the boundaries of the division at the calculated time (wherein the divisions can deliver the local freight to the unloading places at "useful" times).

The monitoring of the status of fleets and even individual tracks is done with the aid of computers at Yaroslavl-Main, Losta and Solvychevodsk stations, where station ASUSS [sorting-yard automated control systems] are in operation.

This makes it possible to control not only the operations of the stations, but the turnover of trains for the outer junctions as well, which is especially important at the so-called critical turnover time. To ensure the turnover for the Koshta Station, for example, the dispatcher ascertains the presence of freight for Solvychevodsk at 8:00 PM. Train No 2183 leaving that station at 8:30 runs that day along the last "turnover line" for Koshta. If the freight exists, the railroad dispatcher gives an indication to shunting for the formation and departure for that time for a train intended for Shushary.

The ASOUP makes it possible to resolve a whole series of other tasks as well. The computer has become a fine assistant and has played a definite role in ensuring the steady passage of railcar traffic on the Northern Railroad. The capabilities provided by the ASOUP at the same time do not entirely suit either the railroad dispatchers or the sectional dispatchers. We are also not satisfied with the existing equipment. We feel that it has become urgent for railroad dispatchers to have ARMs [automated workstations] using modern microcomputers rather than displays and teletypes so that the railroad dispatcher can not only obtain documents from the central computer, but also execute all of the necessary documentation with the aid of the ARM, including

the timetable of actual traffic or other documents reflecting actual train traffic. Large dimensions of traffic, the lengthened operating sections of locomotive and locomotive crews, the utilization of the technical stations for sorting and other operations and the inadequate capacity of the stations all demand of the dispatcher apparatus the adoption of non-standard solutions, and little is obtained here from computers, even operational information. The dispatcher needs to run through a number of versions and select the best of them, i.e., the computer should become an effective assistant dispatcher (advisor) in resolving management tasks.

This is especially important in connection with the creation of dispatcher centers and the redistribution of the functions of managing train operations between the divisions and the railroad administration. Such work on creating an automated train operations management technology (TAUPR) is underway on the railroad. Improvements are envisaged in the system of operational planning and railcar traffic, locomotive and locomotive crew management. Flexible technologies for the operations of stations, sections and whole lines are being developed within the framework of the TAUPR at the same time.

We feel that an opportunity for the further concentration of management functions at the railroad administration or the administration centers will appear based on the TAUPR. Daily-shift plans are currently being developed in particular in the divisions by the deputy senior dispatchers and being sent to the railroad administration. It is more expedient to compose the daily shift plan at the railroad administration (or at the administration centers) with the existing level of technical sophistication, where railroad computer-information centers exist in whose memory are data on the wheel reports for all trains, and in the future for all railcars not organized into trains. The possibility of real-time machine corrections to the train formation plan within the confines of the railroad should furthermore be envisaged. The resolution of these issues will expand markedly the arsenal of means that the railroad dispatcher can utilize to raise the quality of management of the shipping process.

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# Kazakh Rail Performance Noted

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TRANSPORT in Russian No 9, Sep 89 pp 38-39

[Article by Doctor of Economic Sciences L.F. Sukhova and engineer S.Ye. Amanchina, Alma-Ata: "The Economic Problems of the Railroads of Kazakhstan"]

[Text] The railroad transport of Kazakhstan occupies a leading place in the assimilation of freight and passenger transport in the republic. Its share of the total freight turnover of all types of transport was 85.3 percent in 1986. Rail transport gives way significantly to trucking, however, in the shipments of freights: it ships 13.9 percent of all freights, while trucks carry 84.8 percent, or 6.1 times more. It is expected that the share of rail transport as a part of total shipping will stabilize in the future (it was 9.46 percent in 1985, and 9.4 percent is expected for 1990), while its share of the overall freight turnover of the republic will decline somewhat, totaling 83.47 and 76.94 percent respectively for those years. The lag in the assimilation of shipments is explained by a number of reasons, namely the lack of rail lines over considerable areas of the republic, the presence of spur lines of great length such as Beyneu—Uzen, Zharyk—Dzhezkazgan, Solonichki—Karagayly, Yermentau—

Aysary, Yesil—Arkalyk and Dzhambul—Zhanatas among others, the low density of the rail network (there were only 5.37 km [kilometers] of rail lines per 1,000 square km of territory in 1986) and the inadequacy, and in a number of cases complete absence, of reserves of throughput, traffic and handling capabilities on many sections and at many stations and rail centers.

The growth rate of freight shipping is declining on the railroads of the republic. Whereas freight shipments increased by 2-2.5 times or more over each decade from 1940 to 1970 and 64.8 percent more was shipped in 1980 than in 1970, the increase in shipments in 1990 as compared to 1980, according to calculations, will total just 24.2 percent, and in the long run, according to the forecasts of the Kazakh SSR Gosplan, just 23.8 percent over the corresponding period. Matters are somewhat different with freight shipments: there is no clearly expressed dynamic of a drop in growth rates there. Freight turnover increased by 2.21 times in 1950 compared to 1940, 3.53 times in 1960 compared to 1950, 1.84 times in 1970 relative to 1960 and 1.63 times in 1980 relative to 1970, while the planned increase in freight turnover in 1990 relative to 1980 is only 18.1 percent, and in the long term 31.4 percent.

Type of freight	Years			
	1975 actual	1980 actual	1985 actual	1990 planned
Coal and coke	31.6	31.1	35.5	35.4
Petroleum and petroleum products	6.8	7.7	7.9	7.0
Ores of any type	13.5	13.2	12.7	11.7
Ferrous metals	3.2	3.0	3.0	2.8
Timber freight	3.0	1.9	1.7	1.8
Grains	3.5	5.1	2.9	4.0
Mineral and construction freight	21.5	18.9	18.9	18.4
Mineral fertilizers and chemicals	4.0	3.0	5.1	6.1
Other freights	13.0	13.2	13.3	12.8

The pattern of freight shipments over the four and a half decades being analyzed has effectively not changed at all, although the increase in shipments of various types of freight do differ. Some 22.87 times more freights were dispatched in 1986 than in 1940. The pattern of freights in the overall shipping volume (in percentage terms) is cited in the table for the railroads of Kazakhstan. The shipments of these freights will increase in regular fashion in the future, according to calculations.

Intensive growth in passenger transport and passenger turnover is observed over the period under consideration. Some 1.57 times more passengers were transported in 1986 than in 1960, while passenger turnover increased by 1.83 times. Stable increases in the volume of operations in the transport of freight and passengers had a direct effect on the growth in shipment density. There were 2.3 million ton/km of freight traffic per

kilometer of average operational length in 1940, 4 million ton/km and 0.8 million passenger/km in 1960, and 27.3 million ton/km and 1.16 million passenger/km in 1986. The growth in freight traffic density was 17 million ton/km per kilometer of operational length, or 165 percent, and 0.36 million passenger/km per kilometer of operational length, i.e. 44.2 percent, over the 26 years. Such an increase in traffic density was the consequence of the rate of increase in volume considerably outstripping the growth rate of the operational length of the rail lines. Analysis has shown that this process has effectively come to a halt in recent years. The possibilities for increasing traffic density are extremely limited today due to the insufficient electrification of the rail lines. Whereas 16.8 percent of all shipping traffic had been assimilated using electric traction in 1975 and 26.6 percent in 1980, its proportionate share totaled 49.4

percent in 1985. It is planned to convert 55.1 percent of all transport traffic to electric traction in 1990, and somewhat more in the future.

The overall length of the lines with strengthened track structures and equipped with automated signaling and centralized dispatcher switching has a synonymous effect on the throughput and traffic capacities of the railroads of the republic. The length of rail lines equipped with automatic signaling and centralized switching was 58.5 percent of operational length in 1975 and 77.1 percent in 1985, and it will increase in the future. The proportionate share of sections with strengthened track structures is also not high. It totaled just 11.5 percent in 1975 and 19.3 percent in 1985, and it will reach less than a quarter of the overall length of the railroads of the republic in the future, according to calculations. This will restrain the line speeds of trains of enhanced weight and length as well as reduce the reliability of the track.

Growth in capital spending for productive and non-productive facilities is being observed, and the average value of fixed productive capital is increasing, from five-year plan to five-year plan. Their average annual value with the increase in fixed capital in 1980 grew by 3.682 billion rubles in 1980 compared to 1975 and by 2.9698 billion in 1985, while growth of 3.1493 billion rubles is planned for 1990 compared to 1985. This is, however, clearly insufficient, since the capital-to-labor ratio in rail transport is growing at an exceedingly modest rate: it increased 16-20 percent over two five-year plans—from 1975 through 1985—and growth of 28 percent is planned for 1990 relative to 1985, and it will be supplemented a little every five years. Even though the indicator of the quantity of productive capital per worker partly typifies the development of scientific and technical progress in transport, more important is the summary economic indicator of production efficiency, the capital-to-output ratio, which is dropping on the railroads of Kazakhstan—a trend that will be maintained in the future. Declines in the value of fixed capital of 5.1 ton-km/ruble in 1980 compared to 1975 and 2.9 ton-km/ruble in 1985 compared to 1980 occurred, while capital-to-output will drop by another 1.8 ton-km/ruble in 1990.

At the same time, the level of the capital-to-labor and capital-to-output ratios does not provide a complete picture of the situation with the state and utilization of capital on the railroads. It is no secret that there is "ballast" in the capital today—functionally obsolete and physically long-worn-out transport vehicles, tools and equipment that are carried on the balance sheets of enterprises and provide no real return while lowering profitability. And the constant rise in prices for rolling stock and other equipment also has an effect on the capital-to-labor and capital-to-output indicators. Everyone knows of the grave state of track facilities and the poor condition of the rolling stock. The greater portion of the operative locomotive inventory on the network is of outmoded design. Almost half are over 20

years old, and a quarter over 30. Several thousand locomotives that limit traffic capacity on a number of important trunk lines due to their insufficient capacity are being used in operations. The extent of wear on the inventory and chronic shortages of spare parts have led to the fact that the number of breakdowns while underway has increased by 60 percent over the last 10 years, while train delays have quadrupled. Some 14,000 diesels on diesel locomotives had outlived their service lives by the end of 1987, and there is nothing to replace them with. The state of transport equipment on the railroads of Kazakhstan, in short, remains a difficult one.

One of the principal indicators for measuring production efficiency is labor productivity. It is customary to measure it by rail transport in ton-kilometers versus the number of employees in shipping. The growth rate of labor productivity has fluctuated from 8 to 16 percent from five-year plan to five-year plan on the railroads of Kazakhstan. It must be noted that valuations of labor productivity by ton-kilometers are fraught with the danger of an insufficient accounting for a number of factors that have a negative effect on shipping. The lack of reserves of throughput, traffic and handling capacity on a number of sections and at a number of stations, the extreme wear and poor technical sophistication of track facilities, the grave situation with transport equipment, and the locomotive inventory in particular, the low level of mechanization and automation of labor at the facilities and the non-fulfillment of shipping plans by a number of enterprises in the republic, among other things, are restraining circumstances on growth in labor productivity on the railroads of Kazakhstan.

There are despite this no few reserves in the utilization of production capacity, transport equipment and material resources. A regimen of economy and thrift is not ensured to the proper extent at the enterprises of railroad transport in the republic. The cost of shipping has maintained a trend toward worsening for a span of many years as the result of the insufficient involvement of those resources in operational circulation. The cost increased by 0.399 kopecks/ton-km in 1980 compared to 1975, 0.257 kop/ton-km in 1985 compared to 1980 and 0.656 kop/ton-km compared to 1975. A reduction in costs of 0.07 kop/ton-km relative to 1985 and increase of 0.187 kop/ton-km relative to 1980 and 0.586 kop/ton-km compared to 1975 is expected in 1990.

The fact that a rise in the average weight of freight trains using diesel and electric traction is being observed and that the average speed for the delivery of freight and passengers is also increasing on Kazakh railroads is a positive factor. The average weight of a freight train using electric traction increased by 29.6 percent in 1980 versus 1975, and 7.5 percent for diesel, with 5.0 and 5.1 percent respectively for 1985 compared to 1980 and 0.6 and 1.3 percent expected for 1990. The average speed of passenger delivery in 1980 was 95.7 percent of the 1975 level and 108.9 percent for freight, and the growth was 4.8 and 9 percent respectively for 1985 compared to

1980, with increases in speeds of 1.7 and 8.2 percent planned for 1990 relative to 1985 and 2.1 and 7.6 percent in the long run.

The high level of social production and quantitative and qualitative shifts in the structure of the national economy are also effecting an increase and complication of economic-transport ties. These ties increased by 15.7 percent in 1980 compared to 1975 and 10.9 percent in 1985 compared to 1980, and an increase of 11.1 percent is planned compared to 1985 with further growth in the long run. The percentage of foreign ties will increase by 15.4, 0.6, 4.1 and 4.3 percent respectively, as will intra-republic ties by 15.9, 23.9, 17.8 and 18.2 percent. It can be seen from these data that intra-republic shipping will grow faster than imports and exports. This circumstance must be taken into account in planning the further development of the transport system of Kazakhstan.

Analysis of the activity of rail transport in Kazakhstan shows that the measures and efforts being undertaken to develop transport are insufficient and that it remains a "bottleneck" in the mechanism of economic operation of the republic as before. The rapid development of rail transport is undoubtedly one of the components of restructuring our economy, since there is no alternative to railroads in the country. The railroads define the socio-economic life of the country despite the enormous work of trucking, air transport and the maritime and river fleets.

The program of technical retooling and further development of the transport system of the republic assumes

first and foremost a considerable increase in investments directed toward the development of railroads. The share of rail transport in the overall volume of capital investments in the country is unjustifiably small. Whereas it totaled 10-12 percent in the prewar years, it was 3-4 percent in the 10th and 11th Five-Year Plans. Many specialists agree that rail transport should be developed at a faster rate than other sectors, and that this is necessary first and foremost to ensure the uninterrupted development of the base sectors of the national economy.

An increase in investment would make possible a sharp increase in the volume of construction of new railroads so as to eliminate inefficient long-range trucking on the territory of the republic in the future. We must construct a series of sections that are the most important for the functioning of the railroad network of Kazakhstan—and only then set about the construction of other lines—in order to avoid the squandering of resources from which our economy still suffers. We should also accelerate the construction of additional major tracks on trunk lines that have exhausted their throughput and traffic capacity and continue the electrification of rail lines at a rapid pace. We must moreover incorporate more broadly the latest technology, most highly productive transport equipment, reliable means of communication and computers in order to strengthen the material foundation of scientific and technical progress. We must increase sharply the proportionate share of track with strengthened structures with the complete outfitting of the rail lines with automatic signaling and centralized switching.

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